

SEQUENCE LISTING

<110> Gu, Wei

<120> NOVEL G-PROTEIN COUPLED RECEPTORS AND USES THEREFOR

<130> MNI-080CP

<140>

<141>

<150> 09/556,588

<151> 2000-05-08

<150> 60/132,896

<151> 1999-05-06

<160> 12

<170> PatentIn Ver. 2.0

<210> 1

<211> 3637

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (222) .. (3122)

<220>

<221> misc\_feature

<222> (3554)

<223> n = any nucleotide

<400> 1

```

gtcgcacccac gcgtccgcac tcaacaatgc ctgccccctct ctgactgcac cgteccgcgcg 60
ccgctgccgc cgccgcgccc aagccaagtc gagcgggggc gttgccacc gacggcacag 120
cccttggggc cgcccgggac caggaggtga gccgcgcgcg cacagctccg tgcgctcgcc 180
cgtctgagcg cccgccaggt gccccgcagc ccgccgccga g atg cac agc ccg cct 236
                                         Met His Ser Pro Pro
                                         1           5

ggg ctc ctg gcg ctg tgg ctt tgc gct gtg ctg tgc gca tcg gcg cgc 284
Gly Leu Leu Ala Leu Trp Leu Cys Ala Val Leu Cys Ala Ser Ala Arg
                        10                15                20

ggg ggc agc gac ccc cag cct ggc ccg ggg cgt ccc gcc tgc ccg gct 332
Gly Gly Ser Asp Pro Gln Pro Gly Pro Gly Arg Pro Ala Cys Pro Ala
                        25                30                35

ccc tgc cac tgc cag gag gac ggc atc atg ctg tcc gct gac tgc tcc 380
Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu Ser Ala Asp Cys Ser
                        40                45                50

```

gag ctc ggg ctc tca gtg gtg cct gcg gac ctg gac ccc ctg acg gct	428
Glu Leu Gly Leu Ser Val Val Pro Ala Asp Leu Asp Pro Leu Thr Ala	
55 60 65	
tac cta gac ctc agt atg aac aac ctc acg gag ctt cag ccg ggt ctc	476
Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu Leu Gln Pro Gly Leu	
70 75 80 85	
ttc cac cac ctg cgc ttc ctg gag gag ctg cgg ctc tca ggg aac cac	524
Phe His His Leu Arg Phe Leu Glu Glu Leu Arg Leu Ser Gly Asn His	
90 95 100	
ctc tca cac atc ccg gga cag gca ttc tcc ggc ctc cac agc ctc aaa	572
Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly Leu His Ser Leu Lys	
105 110 115	
att cta atg ctg cag agc aac cag ctc cgt ggg atc cca gca gag gca	620
Ile Leu Met Leu Gln Ser Asn Gln Leu Arg Gly Ile Pro Ala Glu Ala	
120 125 130	
cta tgg gag ctg ccc agc ctg cag tcg ctg cgc cta gat gct aat ctc	668
Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg Leu Asp Ala Asn Leu	
135 140 145	
atc tcc ctg gtc cct gag aga agc ttt gag ggg ctc tcc tcc ctc cgc	716
Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly Leu Ser Ser Leu Arg	
150 155 160 165	
cac ctc tgg ctg gat gac aat gca ctc act gag atc ccc gtc aga gct	764
His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu Ile Pro Val Arg Ala	
170 175 180	
ctc aac aac ctt cct gcc cta cag gcc atg acc ttg gct ctc aac cat	812
Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr Leu Ala Leu Asn His	
185 190 195	
atc cgc cac atc cct gac tat gcc ttc cag aac ctc acc agt ctt gtg	860
Ile Arg His Ile Pro Asp Tyr Ala Phe Gln Asn Leu Thr Ser Leu Val	
200 205 210	
gtg ctg cat cta cat aac aac cgc atc cag cat gtg ggg acc cac agc	908
Val Leu His Leu His Asn Asn Arg Ile Gln His Val Gly Thr His Ser	
215 220 225	
ttc gag ggg ctg cac aat ctg gag aca cta gac ctg aac tat aat gag	956
Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Glu	
230 235 240 245	
ctg cag gag ttc ccc ttg gct atc cgg acc ctg ggc agg ctg cag gaa	1004
Leu Gln Glu Phe Pro Leu Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu	
250 255 260	
ttg ggt ttc cat aac aac aac atc aag gct atc cca gag aaa gcc ttc	1052
Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe	
265 270 275	

atg ggc aac cct ctc ctg cag aca ata cat ttt tat gac aac cca atc	1100
Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile	
280 285 290	
cag ttt gtg gga agg tca gca ttc cag tac ctg tct aaa ctg cat acg	1148
Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Ser Lys Leu His Thr	
295 300 305	
cta tct ttg aat ggt gcc act gat atc caa gag ttc cca gac ctc aaa	1196
Leu Ser Leu Asn Gly Ala Thr Asp Ile Gln Glu Phe Pro Asp Leu Lys	
310 315 320 325	
ggc acc act agc ctg gag atc ctg acc ctg acc cgt gcg ggc atc aga	1244
Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg	
330 335 340	
ctg ctc cca ccg gga gtg tgc caa cag ctg cct agg ctc cga atc ctg	1292
Leu Leu Pro Pro Gly Val Cys Gln Gln Leu Pro Arg Leu Arg Ile Leu	
345 350 355	
gag ctg tct cat aat cag atc gag gag tta ccc agc ctg cac aga tgt	1340
Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys	
360 365 370	
cag aag ctg gag gaa att ggc ctc cga cat aac agg atc aag gaa att	1388
Gln Lys Leu Glu Glu Ile Gly Leu Arg His Asn Arg Ile Lys Glu Ile	
375 380 385	
ggt gca gat acc ttc agc cag ctg ggc tcc ttg caa gct tta gac ctg	1436
Gly Ala Asp Thr Phe Ser Gln Leu Gly Ser Leu Gln Ala Leu Asp Leu	
390 395 400 405	
agt tgg aat gcc atc cgt gcc atc cac cct gag gct ttc tca acc ctt	1484
Ser Trp Asn Ala Ile Arg Ala Ile His Pro Glu Ala Phe Ser Thr Leu	
410 415 420	
cga tcc ttg gtt aag ctg gac ctg act gac aac cag ctg acc aca ctg	1532
Arg Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu	
425 430 435	
ccc ctg gct ggg ctg gga ggc ctg atg cac ctg aag ctc aaa ggg aac	1580
Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn	
440 445 450	
ttg gcc ctg tct cag gcc ttc tcc aag gac agt ttc cca aaa ctg agg	1628
Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg	
455 460 465	
atc ctg gag gtg ccc tac gcc tac cag tgc tgt gcc tac ggc atc tgt	1676
Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Ala Tyr Gly Ile Cys	
470 475 480 485	
gcc agc ttc ttc aag acc tct ggg cag tgg cag gcc gag gac ttt cat	1724
Ala Ser Phe Phe Lys Thr Ser Gly Gln Trp Gln Ala Glu Asp Phe His	
490 495 500	
cca gaa gaa gag gag gca cca aag agg ccc ctg ggt ctc ctt gct gga	1772

Pro	Glu	Glu	Glu	Glu	Ala	Pro	Lys	Arg	Pro	Leu	Gly	Leu	Leu	Ala	Gly		
			505					510					515				
caa	gct	gag	aac	cac	tat	gac	cta	gac	ctg	gat	gag	ctc	cag	atg	ggg	1820	
Gln	Ala	Glu	Asn	His	Tyr	Asp	Leu	Asp	Leu	Asp	Glu	Leu	Gln	Met	Gly		
		520					525					530					
aca	gag	gac	tca	aag	cca	aac	ccc	agt	gtc	cag	tgc	agc	cct	ggt	cca	1868	
Thr	Glu	Asp	Ser	Lys	Pro	Asn	Pro	Ser	Val	Gln	Cys	Ser	Pro	Val	Pro		
	535					540					545						
ggc	ccc	ttc	aag	ccc	tgc	gag	cac	ctc	ttt	gag	agc	tgg	ggc	atc	cgc	1916	
Gly	Pro	Phe	Lys	Pro	Cys	Glu	His	Leu	Phe	Glu	Ser	Trp	Gly	Ile	Arg		
550				555						560					565		
ctt	gct	gtg	tgg	gcc	atc	gtg	ctg	ctc	tcc	gta	ctc	tgt	aac	ggg	ctg	1964	
Leu	Ala	Val	Trp	Ala	Ile	Val	Leu	Leu	Ser	Val	Leu	Cys	Asn	Gly	Leu		
				570					575					580			
gtg	ctg	ctg	aca	gtc	ttt	gcc	agc	gga	ccc	agc	ccg	ctg	tcc	ccc	gtc	2012	
Val	Leu	Leu	Thr	Val	Phe	Ala	Ser	Gly	Pro	Ser	Pro	Leu	Ser	Pro	Val		
			585					590					595				
aag	ctt	gtg	gtg	ggt	gcg	atg	gca	ggc	gcc	aac	gcc	ctg	acg	ggc	att	2060	
Lys	Leu	Val	Val	Gly	Ala	Met	Ala	Gly	Ala	Asn	Ala	Leu	Thr	Gly	Ile		
		600					605					610					
tcc	tgt	ggt	ctc	ctg	gcc	tct	gtg	gac	gcc	ttg	acc	tat	ggt	cag	ttc	2108	
Ser	Cys	Gly	Leu	Leu	Ala	Ser	Val	Asp	Ala	Leu	Thr	Tyr	Gly	Gln	Phe		
	615					620					625						
gct	gag	tat	gga	gcc	cgc	tgg	gag	agc	ggt	ctg	ggc	tgc	cag	gct	acg	2156	
Ala	Glu	Tyr	Gly	Ala	Arg	Trp	Glu	Ser	Gly	Leu	Gly	Cys	Gln	Ala	Thr		
630					635					640					645		
ggc	ttc	ctg	gct	gtc	ctg	ggt	tca	gag	gcg	tgc	gtg	ctg	ctg	ctc	aca	2204	
Gly	Phe	Leu	Ala	Val	Leu	Gly	Ser	Glu	Ala	Ser	Val	Leu	Leu	Leu	Thr		
				650					655					660			
ctg	gcg	gcc	gtg	cag	tgc	agc	atc	tct	gtg	acc	tgc	gtc	cga	gcc	tac	2252	
Leu	Ala	Ala	Val	Gln	Cys	Ser	Ile	Ser	Val	Thr	Cys	Val	Arg	Ala	Tyr		
			665					670					675				
ggg	aag	gcg	ccg	tgc	cct	ggc	agc	gtc	cgc	gca	ggc	gca	ctg	gga	tgc	2300	
Gly	Lys	Ala	Pro	Ser	Pro	Gly	Ser	Val	Arg	Ala	Gly	Ala	Leu	Gly	Cys		
		680					685					690					
ctg	gcg	ctg	gcc	ggg	ctg	gcc	gca	gca	ctg	ccg	ctg	gcc	tgc	gtg	gga	2348	
Leu	Ala	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Leu	Pro	Leu	Ala	Ser	Val	Gly		
			695			700					705						
gag	tat	ggc	gcc	tcc	cca	ctc	tgc	ctg	ccc	tac	gcc	cca	ccc	gag	ggc	2396	
Glu	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu	Pro	Tyr	Ala	Pro	Pro	Glu	Gly		
710					715					720					725		
cgg	ccg	gcc	gcc	ctg	ggc	ttc	gct	gta	gcc	ctg	gtg	atg	atg	aac	tgc	2444	
Arg	Pro	Ala	Ala	Leu	Gly	Phe	Ala	Val	Ala	Leu	Val	Met	Met	Asn	Ser		

730										735					740					
ctc	tgc	ttc	ctg	gtg	gtg	gcc	ggc	gcc	tac	atc	aag	ctc	tac	tgt	gac	2492				
Leu	Cys	Phe	Leu	Val	Val	Ala	Gly	Ala	Tyr	Ile	Lys	Leu	Tyr	Cys	Asp					
745			750			755														
ctg	cca	cgg	ggg	gac	ttt	gag	gcc	gtg	tgg	gac	tgc	gcc	atg	gtg	cgc	2540				
Leu	Pro	Arg	Gly	Asp	Phe	Glu	Ala	Val	Trp	Asp	Cys	Ala	Met	Val	Arg					
760			765			770														
cac	gtg	gcc	tgg	ctc	atc	ttt	gca	gat	ggc	ctc	ctc	tac	tgc	ccc	gtg	2588				
His	Val	Ala	Trp	Leu	Ile	Phe	Ala	Asp	Gly	Leu	Leu	Tyr	Cys	Pro	Val					
775			780			785														
gcc	ttc	ctc	agc	ttt	gcc	tcc	atg	ctg	ggc	ctc	ttc	cct	gtc	acc	ccc	2636				
Ala	Phe	Leu	Ser	Phe	Ala	Ser	Met	Leu	Gly	Leu	Phe	Pro	Val	Thr	Pro					
790			795			800			805											
gag	gct	gtc	aag	tca	gtc	ctt	ctg	gtg	gtg	ctg	cct	ctg	cct	gcc	tgc	2684				
Glu	Ala	Val	Lys	Ser	Val	Leu	Leu	Val	Val	Leu	Pro	Leu	Pro	Ala	Cys					
810			815			820														
ctc	aac	cca	ctg	ctc	tac	ctg	ctc	ttc	aac	cct	cac	ttc	cgg	gat	gac	2732				
Leu	Asn	Pro	Leu	Leu	Tyr	Leu	Leu	Phe	Asn	Pro	His	Phe	Arg	Asp	Asp					
825			830			835														
ctt	cgg	cgg	ctc	tgg	cca	agc	cct	cgg	tcc	cca	ggg	ccc	cta	gcc	tac	2780				
Leu	Arg	Arg	Leu	Trp	Pro	Ser	Pro	Arg	Ser	Pro	Gly	Pro	Leu	Ala	Tyr					
840			845			850														
gct	gca	gcc	ggg	gag	ctg	gag	aag	agc	tcc	tgc	gac	tcc	acc	caa	gcg	2828				
Ala	Ala	Ala	Gly	Glu	Leu	Glu	Lys	Ser	Ser	Cys	Asp	Ser	Thr	Gln	Ala					
855			860			865														
ctg	gtg	gct	ttc	tca	gat	gtg	gat	ctt	att	ctg	gaa	gct	tct	gag	gct	2876				
Leu	Val	Ala	Phe	Ser	Asp	Val	Asp	Leu	Ile	Leu	Glu	Ala	Ser	Glu	Ala					
870			875			880			885											
ggg	cag	cct	cct	ggg	cta	gag	acc	tat	ggc	ttc	cct	tca	gtg	acc	ctc	2924				
Gly	Gln	Pro	Pro	Gly	Leu	Glu	Thr	Tyr	Gly	Phe	Pro	Ser	Val	Thr	Leu					
890			895			900														
atc	tcc	cga	cat	cag	ccg	ggg	gcc	acc	agg	ctg	gag	gga	aac	cat	ttt	2972				
Ile	Ser	Arg	His	Gln	Pro	Gly	Ala	Thr	Arg	Leu	Glu	Gly	Asn	His	Phe					
905			910			915														
ata	gag	tct	gat	gga	acc	aag	ttt	ggg	aac	cca	caa	cct	ccc	atg	aag	3020				
Ile	Glu	Ser	Asp	Gly	Thr	Lys	Phe	Gly	Asn	Pro	Gln	Pro	Pro	Met	Lys					
920			925			930														
gga	gaa	ctg	ctg	ctg	aag	gca	gag	gga	gcc	act	ttg	gca	ggc	tgt	ggc	3068				
Gly	Glu	Leu	Leu	Leu	Lys	Ala	Glu	Gly	Ala	Thr	Leu	Ala	Gly	Cys	Gly					
935			940			945														
tct	tcc	gtg	ggg	gga	gcc	ctc	tgg	ccc	tct	ggc	tct	ctc	ttt	gcc	tct	3116				
Ser	Ser	Val	Gly	Gly	Ala	Leu	Trp	Pro	Ser	Gly	Ser	Leu	Phe	Ala	Ser					
950			955			960			965											

cac ttg taaatatccc tctctgtttg tctctccccc atccaatgat ggctgcttat 3172  
His Leu

aaaagaaaga caactccaac tccatagcaa gatggccaac acctctgact ccattgttct 3232

ctctccacga ccctaacca atgagtgtt ccaagtcttg ctttgtcttg gccttcagct 3292

tcactttcac cctgggcctt ctctgtccaa tccaatactt ctgacagagg cctgggaaat 3352

ttgcatagga gaaaggagaa aagcaaaaga cagtgaaggt tattgggccc tgacagagcc 3412

atgatcagta agtgcagagt gatggggagg tctcacagag catgacactg gaagacaact 3472

accaaagaca ttggagagtc tccctgtga catatagaat ataaaatgtg ttctgcgttc 3532

cattaatctt gacctatgct gngccaaagt gcttctgtt aaaatacact ttggaagaca 3592

ttgaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaagggcg gccgc 3637

<210> 2

<211> 967

<212> PRT

<213> Mus musculus

<400> 2

Met His Ser Pro Pro Gly Leu Leu Ala Leu Trp Leu Cys Ala Val Leu  
1 5 10 15

Cys Ala Ser Ala Arg Gly Gly Ser Asp Pro Gln Pro Gly Pro Gly Arg  
20 25 30

Pro Ala Cys Pro Ala Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu  
35 40 45

Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Val Val Pro Ala Asp Leu  
50 55 60

Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu  
65 70 75 80

Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg  
85 90 95

Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly  
100 105 110

Leu His Ser Leu Lys Ile Leu Met Leu Gln Ser Asn Gln Leu Arg Gly  
115 120 125

Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg  
130 135 140

Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly  
145 150 155 160

Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu  
 165 170 175  
 Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr  
 180 185 190  
 Leu Ala Leu Asn His Ile Arg His Ile Pro Asp Tyr Ala Phe Gln Asn  
 195 200 205  
 Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His  
 210 215 220  
 Val Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp  
 225 230 235 240  
 Leu Asn Tyr Asn Glu Leu Gln Glu Phe Pro Leu Ala Ile Arg Thr Leu  
 245 250 255  
 Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile  
 260 265 270  
 Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe  
 275 280 285  
 Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu  
 290 295 300  
 Ser Lys Leu His Thr Leu Ser Leu Asn Gly Ala Thr Asp Ile Gln Glu  
 305 310 315 320  
 Phe Pro Asp Leu Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr  
 325 330 335  
 Arg Ala Gly Ile Arg Leu Leu Pro Pro Gly Val Cys Gln Gln Leu Pro  
 340 345 350  
 Arg Leu Arg Ile Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro  
 355 360 365  
 Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Arg His Asn  
 370 375 380  
 Arg Ile Lys Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Gly Ser Leu  
 385 390 395 400  
 Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ala Ile His Pro Glu  
 405 410 415  
 Ala Phe Ser Thr Leu Arg Ser Leu Val Lys Leu Asp Leu Thr Asp Asn  
 420 425 430  
 Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu  
 435 440 445  
 Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser  
 450 455 460

Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys  
 465 470 475 480  
 Ala Tyr Gly Ile Cys Ala Ser Phe Phe Lys Thr Ser Gly Gln Trp Gln  
 485 490 495  
 Ala Glu Asp Phe His Pro Glu Glu Glu Ala Pro Lys Arg Pro Leu  
 500 505 510  
 Gly Leu Leu Ala Gly Gln Ala Glu Asn His Tyr Asp Leu Asp Leu Asp  
 515 520 525  
 Glu Leu Gln Met Gly Thr Glu Asp Ser Lys Pro Asn Pro Ser Val Gln  
 530 535 540  
 Cys Ser Pro Val Pro Gly Pro Phe Lys Pro Cys Glu His Leu Phe Glu  
 545 550 555 560  
 Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val  
 565 570 575  
 Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Ser Gly Pro Ser  
 580 585 590  
 Pro Leu Ser Pro Val Lys Leu Val Val Gly Ala Met Ala Gly Ala Asn  
 595 600 605  
 Ala Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu  
 610 615 620  
 Thr Tyr Gly Gln Phe Ala Glu Tyr Gly Ala Arg Trp Glu Ser Gly Leu  
 625 630 635 640  
 Gly Cys Gln Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser  
 645 650 655  
 Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Ile Ser Val Thr  
 660 665 670  
 Cys Val Arg Ala Tyr Gly Lys Ala Pro Ser Pro Gly Ser Val Arg Ala  
 675 680 685  
 Gly Ala Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro  
 690 695 700  
 Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr  
 705 710 715 720  
 Ala Pro Pro Glu Gly Arg Pro Ala Ala Leu Gly Phe Ala Val Ala Leu  
 725 730 735  
 Val Met Met Asn Ser Leu Cys Phe Leu Val Val Ala Gly Ala Tyr Ile  
 740 745 750  
 Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp  
 755 760 765



Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu  
 770 775 780  
 Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu  
 785 790 795 800  
 Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu  
 805 810 815  
 Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro  
 820 825 830  
 His Phe Arg Asp Asp Leu Arg Arg Leu Trp Pro Ser Pro Arg Ser Pro  
 835 840 845  
 Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys  
 850 855 860  
 Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu  
 865 870 875 880  
 Glu Ala Ser Glu Ala Gly Gln Pro Pro Gly Leu Glu Thr Tyr Gly Phe  
 885 890 895  
 Pro Ser Val Thr Leu Ile Ser Arg His Gln Pro Gly Ala Thr Arg Leu  
 900 905 910  
 Glu Gly Asn His Phe Ile Glu Ser Asp Gly Thr Lys Phe Gly Asn Pro  
 915 920 925  
 Gln Pro Pro Met Lys Gly Glu Leu Leu Leu Lys Ala Glu Gly Ala Thr  
 930 935 940  
 Leu Ala Gly Cys Gly Ser Ser Val Gly Gly Ala Leu Trp Pro Ser Gly  
 945 950 955 960  
 Ser Leu Phe Ala Ser His Leu  
 965

&lt;210&gt; 3

&lt;211&gt; 2901

&lt;212&gt; DNA

&lt;213&gt; Mus musculus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) .. (2901)

&lt;400&gt; 3

atg cac agc ccg cct ggg ctc ctg gcg ctg tgg ctt tgc gct gtg ctg 48  
 Met His Ser Pro Pro Gly Leu Leu Ala Leu Trp Leu Cys Ala Val Leu  
 1 5 10 15  
 tgc gca tcg gcg cgc ggg ggc agc gac ccc cag cct ggc ccg ggg cgt 96  
 Cys Ala Ser Ala Arg Gly Gly Ser Asp Pro Gln Pro Gly Pro Gly Arg  
 20 25 30

ccc gcc tgc ccg gct ccc tgc cac tgc cag gag gac ggc atc atg ctg	144
Pro Ala Cys Pro Ala Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu	
35 40 45	
tcc gct gac tgc tcc gag ctc ggg ctc tca gtg gtg cct gcg gac ctg	192
Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Val Val Pro Ala Asp Leu	
50 55 60	
gac ccc ctg acg gct tac cta gac ctc agt atg aac aac ctc acg gag	240
Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu	
65 70 75 80	
ctt cag ccg ggt ctc ttc cac cac ctg cgc ttc ctg gag gag ctg cgg	288
Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg	
85 90 95	
ctc tca ggg aac cac ctc tca cac atc ccg gga cag gca ttc tcc ggc	336
Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly	
100 105 110	
ctc cac agc ctc aaa att cta atg ctg cag agc aac cag ctc cgt ggg	384
Leu His Ser Leu Lys Ile Leu Met Leu Gln Ser Asn Gln Leu Arg Gly	
115 120 125	
atc cca gca gag gca cta tgg gag ctg ccc agc ctg cag tcg ctg cgc	432
Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg	
130 135 140	
cta gat gct aat ctc atc tcc ctg gtc cct gag aga agc ttt gag ggg	480
Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly	
145 150 155 160	
ctc tcc tcc ctc cgc cac ctc tgg ctg gat gac aat gca ctc act gag	528
Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu	
165 170 175	
atc ccc gtc aga gct ctc aac aac ctt cct gcc cta cag gcc atg acc	576
Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr	
180 185 190	
ttg gct ctc aac cat atc cgc cac atc cct gac tat gcc ttc cag aac	624
Leu Ala Leu Asn His Ile Arg His Ile Pro Asp Tyr Ala Phe Gln Asn	
195 200 205	
ctc acc agt ctt gtg gtg ctg cat cta cat aac aac cgc atc cag cat	672
Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His	
210 215 220	
gtg ggg acc cac agc ttc gag ggg ctg cac aat ctg gag aca cta gac	720
Val Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp	
225 230 235 240	
ctg aac tat aat gag ctg cag gag ttc ccc ttg gct atc cgg acc ctg	768
Leu Asn Tyr Asn Glu Leu Gln Glu Phe Pro Leu Ala Ile Arg Thr Leu	
245 250 255	

ggc agg ctg cag gaa ttg ggt ttc cat aac aac aac atc aag gct atc	816
Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile	
260 265 270	
cca gag aaa gcc ttc atg ggc aac cct ctc ctg cag aca ata cat ttt	864
Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe	
275 280 285	
tat gac aac cca atc cag ttt gtg gga agg tca gca ttc cag tac ctg	912
Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu	
290 295 300	
tct aaa ctg cat acg cta tct ttg aat ggt gcc act gat atc caa gag	960
Ser Lys Leu His Thr Leu Ser Leu Asn Gly Ala Thr Asp Ile Gln Glu	
305 310 315 320	
ttc cca gac ctc aaa ggc acc act agc ctg gag atc ctg acc ctg acc	1008
Phe Pro Asp Leu Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr	
325 330 335	
cgt gcg ggc atc aga ctg ctc cca ccg gga gtg tgc caa cag ctg cct	1056
Arg Ala Gly Ile Arg Leu Leu Pro Pro Gly Val Cys Gln Gln Leu Pro	
340 345 350	
agg ctc cga atc ctg gag ctg tct cat aat cag atc gag gag tta ccc	1104
Arg Leu Arg Ile Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro	
355 360 365	
agc ctg cac aga tgt cag aag ctg gag gaa att ggc ctc cga cat aac	1152
Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Arg His Asn	
370 375 380	
agg atc aag gaa att ggt gca gat acc ttc agc cag ctg ggc tcc ttg	1200
Arg Ile Lys Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Gly Ser Leu	
385 390 395 400	
caa gct tta gac ctg agt tgg aat gcc atc cgt gcc atc cac cct gag	1248
Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ala Ile His Pro Glu	
405 410 415	
gct ttc tca acc ctt cga tcc ttg gtt aag ctg gac ctg act gac aac	1296
Ala Phe Ser Thr Leu Arg Ser Leu Val Lys Leu Asp Leu Thr Asp Asn	
420 425 430	
cag ctg acc aca ctg ccc ctg gct ggg ctg gga ggc ctg atg cac ctg	1344
Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu	
435 440 445	
aag ctc aaa ggg aac ttg gcc ctg tct cag gcc ttc tcc aag gac agt	1392
Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser	
450 455 460	
ttc cca aaa ctg agg atc ctg gag gtg ccc tac gcc tac cag tgc tgt	1440
Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys	
465 470 475 480	
gcc tac ggc atc tgt gcc agc ttc ttc aag acc tct ggg cag tgg cag	1488

Ala Tyr Gly Ile Cys Ala Ser Phe Phe Lys Thr Ser Gly Gln Trp Gln	
485 490 495	
gcc gag gac ttt cat cca gaa gaa gag gag gca cca aag agg ccc ctg	1536
Ala Glu Asp Phe His Pro Glu Glu Glu Glu Ala Pro Lys Arg Pro Leu	
500 505 510	
ggt ctc ctt gct gga caa gct gag aac cac tat gac cta gac ctg gat	1584
Gly Leu Leu Ala Gly Gln Ala Glu Asn His Tyr Asp Leu Asp Leu Asp	
515 520 525	
gag ctc cag atg ggg aca gag gac tca aag cca aac ccc agt gtc cag	1632
Glu Leu Gln Met Gly Thr Glu Asp Ser Lys Pro Asn Pro Ser Val Gln	
530 535 540	
tgc agc cct gtt cca ggc ccc ttc aag ccc tgc gag cac ctc ttt gag	1680
Cys Ser Pro Val Pro Gly Pro Phe Lys Pro Cys Glu His Leu Phe Glu	
545 550 555 560	
agc tgg ggc atc cgc ctt gct gtg tgg gcc atc gtg ctg ctc tcc gta	1728
Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val	
565 570 575	
ctc tgt aac ggg ctg gtg ctg ctg aca gtc ttt gcc agc gga ccc agc	1776
Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Ser Gly Pro Ser	
580 585 590	
ccg ctg tcc ccc gtc aag ctt gtg gtg ggt gcg atg gca ggc gcc aac	1824
Pro Leu Ser Pro Val Lys Leu Val Val Gly Ala Met Ala Gly Ala Asn	
595 600 605	
gcc ctg acg ggc att tcc tgt ggt ctc ctg gcc tct gtg gac gcc ttg	1872
Ala Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu	
610 615 620	
acc tat ggt cag ttc gct gag tat gga gcc cgc tgg gag agc ggt ctg	1920
Thr Tyr Gly Gln Phe Ala Glu Tyr Gly Ala Arg Trp Glu Ser Gly Leu	
625 630 635 640	
ggc tgc cag gct acg ggc ttc ctg gct gtc ctg ggt tca gag gcg tcg	1968
Gly Cys Gln Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser	
645 650 655	
gtg ctg ctg ctc aca ctg gcg gcc gtg cag tgc agc atc tct gtg acc	2016
Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Ile Ser Val Thr	
660 665 670	
tgc gtc cga gcc tac ggg aag gcg ccg tcg cct ggc agc gtc cgc gca	2064
Cys Val Arg Ala Tyr Gly Lys Ala Pro Ser Pro Gly Ser Val Arg Ala	
675 680 685	
ggc gca ctg gga tgc ctg gcg ctg gcc ggg ctg gcc gca gca ctg ccg	2112
Gly Ala Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro	
690 695 700	
ctg gcc tcg gtg gga gag tat ggc gcc tcc cca ctc tgc ctg ccc tac	2160
Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr	

705	710	715	720	
gcc cca ccc gag ggc cgg ccg gcc gcc ctg ggc ttc gct gta gcc ctg				2208
Ala Pro Pro Glu Gly Arg Pro Ala Ala Leu Gly Phe Ala Val Ala Leu				
	725	730	735	
gtg atg atg aac tgc ctc tgc ttc ctg gtg gtg gcc ggc gcc tac atc				2256
Val Met Met Asn Ser Leu Cys Phe Leu Val Val Ala Gly Ala Tyr Ile				
	740	745	750	
aag ctc tac tgt gac ctg cca cgg ggt gac ttt gag gcc gtg tgg gac				2304
Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp				
	755	760	765	
tgc gcc atg gtg cgc cac gtg gcc tgg ctc atc ttt gca gat ggc ctc				2352
Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu				
	770	775	780	
ctc tac tgc ccc gtg gcc ttc ctc agc ttt gcc tcc atg ctg ggc ctc				2400
Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu				
	785	790	795	800
ttc cct gtc acc ccc gag gct gtc aag tca gtc ctt ctg gtg gtg ctg				2448
Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu				
	805	810	815	
cct ctg cct gcc tgc ctc aac cca ctg ctc tac ctg ctc ttc aac cct				2496
Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro				
	820	825	830	
cac ttc cgg gat gac ctt cgg cgg ctc tgg cca agc cct cgg tcc cca				2544
His Phe Arg Asp Asp Leu Arg Arg Leu Trp Pro Ser Pro Arg Ser Pro				
	835	840	845	
ggg ccc cta gcc tac gct gca gcc ggt gag ctg gag aag agc tcc tgc				2592
Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys				
	850	855	860	
gac tcc acc caa gcg ctg gtg gct ttc tca gat gtg gat ctt att ctg				2640
Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu				
	865	870	875	880
gaa gct tct gag gct ggg cag cct cct ggg cta gag acc tat ggc ttc				2688
Glu Ala Ser Glu Ala Gly Gln Pro Pro Gly Leu Glu Thr Tyr Gly Phe				
	885	890	895	
cct tca gtg acc ctc atc tcc cga cat cag ccg ggg gcc acc agg ctg				2736
Pro Ser Val Thr Leu Ile Ser Arg His Gln Pro Gly Ala Thr Arg Leu				
	900	905	910	
gag gga aac cat ttt ata gag tct gat gga acc aag ttt ggg aac cca				2784
Glu Gly Asn His Phe Ile Glu Ser Asp Gly Thr Lys Phe Gly Asn Pro				
	915	920	925	
caa cct ccc atg aag gga gaa ctg ctg ctg aag gca gag gga gcc act				2832
Gln Pro Pro Met Lys Gly Glu Leu Leu Leu Lys Ala Glu Gly Ala Thr				
	930	935	940	

```

ttg gca ggc tgt ggc tct tcc gtg ggt gga gcc ctc tgg ccc tct ggc 2880
Leu Ala Gly Cys Gly Ser Ser Val Gly Gly Ala Leu Trp Pro Ser Gly
945                950                955                960

```

```

tct ctc ttt gcc tct cac ttg 2901
Ser Leu Phe Ala Ser His Leu
          965

```

<210> 4

<211> 2486

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (2) .. (1900)

<220>

<221> misc\_feature

<222> (172)

<223> n = any nucleotide

<400> 4

```

t aat acg act cac tat agg gaa agc tgg tac gcc tgc agg tac cgg tcc 49
  Asn Thr Thr His Tyr Arg Glu Ser Trp Tyr Ala Cys Arg Tyr Arg Ser
    1                5                10                15

```

```

gga att ccc ggg tcg acc cac gcg tcc gtg gag cgg agc cag ggt ctg 97
Gly Ile Pro Gly Ser Thr His Ala Ser Val Glu Arg Ser Gln Gly Leu
          20                25                30

```

```

agc ctg ccg gct cat cca gcc tct ctt gct gcc cta gcg gcc tcc aac 145
Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn
          35                40                45

```

```

aca acc gca tct ggg aaa ttg gag ctn gac acc ttc agc cag ctg agc 193
Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser
          50                55                60

```

```

tcc ctg caa gcc ctg gat ctt agc tgg aac gcc atc cgg tcc atc cac 241
Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His
          65                70                75                80

```

```

cct gag gcc ttc tcc acc ctg cac tcc ctg gtc aag ctg gac ctg aca 289
Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr
          85                90                95

```

```

gac aac cag ctg acc aca ctg ccc ctg gct gga ctt ggg ggc ttg atg 337
Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met
          100                105                110

```

```

cat ctg aag ctc aaa ggg aac ctt gct ctc tcc cag gcc ttc tcc aag 385
His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys
          115                120                125

```

gac agt ttc cca aaa ctg agg atc ctg gag gtg cct tat gcc tac cag	433
Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln	
130 135 140	
tgc tgt ccc tat ggg atg tgt gcc agc ttc ttc aag gcc tct ggg cag	481
Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln	
145 150 155 160	
tgg gag gct gaa gac ctt cac ctt gat gat gag gag tct tca aaa agg	529
Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg	
165 170 175	
ccc ctg ggc ctc ctt gcc aga caa gca gag aac cac tat gac cag gac	577
Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp	
180 185 190	
ctg gat gag ctc cag ctg gag atg gag gac tca aag cca cac ccc agt	625
Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser	
195 200 205	
gtc cag tgt agc cct act cca ggc ccc ttc aag ccc tgt gag tac ctc	673
Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu	
210 215 220	
ttt gaa agc tgg ggc atc cgc ctg gcc gtg tgg gcc atc gtg ttg ctc	721
Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu	
225 230 235 240	
tcc gtg ctc tgc aat gga ctg gtg ctg ctg acc gtg ttc gct ggc ggg	769
Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly	
245 250 255	
cct gcc ccc ctg ccc ccg gtc aag ttt gtg gta ggt gcg att gca ggc	817
Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly	
260 265 270	
gcc aac acc ttg act ggc att tcc tgt ggc ctt cta gcc tca gtc gat	865
Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp	
275 280 285	
gcc ctg acc ttt ggt cag ttc tct gag tac gga gcc cgc tgg gag acg	913
Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr	
290 295 300	
ggg cta ggc tgc cgg gcc act ggc ttc ctg gca gta ctt ggg tcg gag	961
Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu	
305 310 315 320	
gca tcg gtg ctg ctg ctc act ctg gcc gca gtg cag tgc agc gtc tcc	1009
Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser	
325 330 335	
gtc tcc tgt gtc cgg gcc tat ggg aag tcc ccc tcc ctg ggc agc gtt	1057
Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val	
340 345 350	
cga gca ggg gtc cta ggc tgc ctg gca ctg gca ggg ctg gcc gcc gca	1105

Arg	Ala	Gly	Val	Leu	Gly	Cys	Leu	Ala	Leu	Ala	Gly	Leu	Ala	Ala	Ala		
		355					360					365					
ctg	ccc	ctg	gcc	tca	gtg	gga	gaa	tac	ggg	gcc	tcc	cca	ctc	tgc	ctg	1153	
Leu	Pro	Leu	Ala	Ser	Val	Gly	Glu	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu		
		370				375					380						
ccc	tac	gcg	cca	cct	gag	ggg	cag	cca	gca	gcc	ctg	ggc	ttc	acc	gtg	1201	
Pro	Tyr	Ala	Pro	Pro	Glu	Gly	Gln	Pro	Ala	Ala	Leu	Gly	Phe	Thr	Val		
					390					395					400		
gcc	ctg	gtg	atg	atg	aac	tcc	ttc	tgt	ttc	ctg	gtc	gtg	gcc	ggg	gcc	1249	
Ala	Leu	Val	Met	Met	Asn	Ser	Phe	Cys	Phe	Leu	Val	Val	Ala	Gly	Ala		
				405					410					415			
tac	atc	aaa	ctg	tac	tgt	gac	ctg	ccg	cgg	ggc	gac	ttt	gag	gcc	gtg	1297	
Tyr	Ile	Lys	Leu	Tyr	Cys	Asp	Leu	Pro	Arg	Gly	Asp	Phe	Glu	Ala	Val		
			420				425						430				
tgg	gac	tgc	gcc	atg	gtg	agg	cac	gtg	gcc	tgg	ctc	atc	ttc	gca	gac	1345	
Trp	Asp	Cys	Ala	Met	Val	Arg	His	Val	Ala	Trp	Leu	Ile	Phe	Ala	Asp		
		435					440					445					
ggg	ctc	ctc	tac	tgt	ccc	gtg	gcc	ttc	ctc	agc	ttc	gcc	tcc	atg	ctg	1393	
Gly	Leu	Leu	Tyr	Cys	Pro	Val	Ala	Phe	Leu	Ser	Phe	Ala	Ser	Met	Leu		
		450				455					460						
ggc	ctc	ttc	cct	gtc	acg	ccc	gag	gcc	gtc	aag	tct	gtc	ctg	ctg	gtg	1441	
Gly	Leu	Phe	Pro	Val	Thr	Pro	Glu	Ala	Val	Lys	Ser	Val	Leu	Leu	Val		
					470					475					480		
gtg	ctg	ccc	ctg	cct	gcc	tgc	ctc	aac	cca	ctg	ctg	tac	ctg	ctc	ttc	1489	
Val	Leu	Pro	Leu	Pro	Ala	Cys	Leu	Asn	Pro	Leu	Leu	Tyr	Leu	Leu	Phe		
				485					490					495			
aac	ccc	cac	ttc	cgg	gat	gac	ctt	cgg	cgg	ctt	cgg	ccc	cgc	gca	ggg	1537	
Asn	Pro	His	Phe	Arg	Asp	Asp	Leu	Arg	Arg	Leu	Arg	Pro	Arg	Ala	Gly		
			500					505					510				
gac	tca	ggg	ccc	cta	gcc	tat	gct	gcg	gcc	ggg	gag	ctg	gag	aag	agc	1585	
Asp	Ser	Gly	Pro	Leu	Ala	Tyr	Ala	Ala	Ala	Gly	Glu	Leu	Glu	Lys	Ser		
		515					520					525					
tcc	tgt	gat	tct	acc	cag	gcc	ctg	gta	gcc	ttc	tct	gat	gtg	gat	ctc	1633	
Ser	Cys	Asp	Ser	Thr	Gln	Ala	Leu	Val	Ala	Phe	Ser	Asp	Val	Asp	Leu		
		530				535					540						
att	ctg	gaa	gct	tct	gaa	gct	ggg	cgg	ccc	cct	ggg	ctg	gag	acc	tat	1681	
Ile	Leu	Glu	Ala	Ser	Glu	Ala	Gly	Arg	Pro	Pro	Gly	Leu	Glu	Thr	Tyr		
		545				550				555					560		
ggc	ttc	ccc	tca	gtg	acc	ctc	atc	tcc	tgt	cag	cag	cca	ggg	gcc	ccc	1729	
Gly	Phe	Pro	Ser	Val	Thr	Leu	Ile	Ser	Cys	Gln	Gln	Pro	Gly	Ala	Pro		
				565					570					575			
agg	ctg	gag	ggc	agc	cat	tgt	gta	gag	cca	gag	ggg	aac	cac	ttt	ggg	1777	
Arg	Leu	Glu	Gly	Ser	His	Cys	Val	Glu	Pro	Glu	Gly	Asn	His	Phe	Gly		



```

580
aac ccc caa ccc tcc atg gat gga gaa ctg ctg ctg agg gca gag gga 1825
Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly
595 600 605

tct acg cca gca ggt gga ggc ttg tca ggg ggt ggc ggc ttt cag ccc 1873
Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro
610 615 620

tct ggc ttg gcc ttt gct tca cac gtg taaatatccc tccccattct 1920
Ser Gly Leu Ala Phe Ala Ser His Val
625 630

tctcttcccc tctcttcctt ttctctctct cccctcggtg aatgatggct gcttctaaaa 1980

caaatacaac caaaactcag cagtgtgatc tatagcagga tggcccagta cctgggtcca 2040

ctgatcacct ctctctgtg accatcacca acgggtgcct cttggcctgg ctttcccttg 2100

gccttctctca gcttcacctt gatactgggc ctcttctctg tcatgtctga agctgtggac 2160

cagagacctg gacttttgtc tgcttaaggg aaatgagggg agtaaagaca gtgaaggggt 2220

ggaggggttg tcaaggcaca gtggacaggg agacctcaca gagaaaggcc tggaagggtga 2280

tttcccggtg gactcatgga taggatacaa aatgtgttcc atgtaccatt aatcttgaca 2340

tatgccatgc ataaagactt cctattaaaa taagctttgg aagagattaa aaaaaaaaaa 2400

aaagggcggc cgctctagag gatccaagct tacgtacgcg tgcatgcgac gtcatagctc 2460

ttctatagtg tcacctaaat tcaatt 2486

<210> 5
<211> 633
<212> PRT
<213> Homo sapiens

<220>
<221> VARIANT
<222> (57)
<223> Xaa = any amino acid

<400> 5
Asn Thr Thr His Tyr Arg Glu Ser Trp Tyr Ala Cys Arg Tyr Arg Ser
1 5 10 15

Gly Ile Pro Gly Ser Thr His Ala Ser Val Glu Arg Ser Gln Gly Leu
20 25 30

Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn
35 40 45

Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser
50 55 60

```

Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His  
 65 70 75 80  
 Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr  
 85 90 95  
 Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met  
 100 105 110  
 His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys  
 115 120 125  
 Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln  
 130 135 140  
 Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln  
 145 150 155 160  
 Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg  
 165 170 175  
 Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp  
 180 185 190  
 Leu Asp Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser  
 195 200 205  
 Val Gln Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu  
 210 215 220  
 Phe Glu Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu  
 225 230 235 240  
 Ser Val Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly  
 245 250 255  
 Pro Ala Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly  
 260 265 270  
 Ala Asn Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp  
 275 280 285  
 Ala Leu Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr  
 290 295 300  
 Gly Leu Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu  
 305 310 315 320  
 Ala Ser Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser  
 325 330 335  
 Val Ser Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val  
 340 345 350  
 Arg Ala Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala  
 355 360 365

Leu Pro Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu  
 370 375 380  
 Pro Tyr Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val  
 385 390 395 400  
 Ala Leu Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala  
 405 410 415  
 Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val  
 420 425 430  
 Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp  
 435 440 445  
 Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu  
 450 455 460  
 Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val  
 465 470 475 480  
 Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe  
 485 490 495  
 Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly  
 500 505 510  
 Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser  
 515 520 525  
 Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu  
 530 535 540  
 Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr  
 545 550 555 560  
 Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro  
 565 570 575  
 Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly  
 580 585 590  
 Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly  
 595 600 605  
 Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro  
 610 615 620  
 Ser Gly Leu Ala Phe Ala Ser His Val  
 625 630

&lt;210&gt; 6

&lt;211&gt; 1899

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) .. (1899)

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (171)

&lt;223&gt; n = any nucleotide

&lt;400&gt; 6

aat acg act cac tat agg gaa agc tgg tac gcc tgc agg tac egg tcc	48
Asn Thr Thr His Tyr Arg Glu Ser Trp Tyr Ala Cys Arg Tyr Arg Ser	
1 5 10 15	
gga att ccc ggg tgc acc cac gcg tcc gtg gag cgg agc cag ggt ctg	96
Gly Ile Pro Gly Ser Thr His Ala Ser Val Glu Arg Ser Gln Gly Leu	
20 25 30	
agc ctg ccg gct cat cca gcc tct ctt gct gcc cta gcg gcc tcc aac	144
Ser Leu Pro Ala His Pro Ala Ser Leu Ala Ala Leu Ala Ala Ser Asn	
35 40 45	
aca acc gca tct ggg aaa ttg gag ctg gac acc ttc agc cag ctg agc	192
Thr Thr Ala Ser Gly Lys Leu Glu Xaa Asp Thr Phe Ser Gln Leu Ser	
50 55 60	
tcc ctg caa gcc ctg gat ctt agc tgg aac gcc atc cgg tcc atc cac	240
Ser Leu Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His	
65 70 75 80	
cct gag gcc ttc tcc acc ctg cac tcc ctg gtc aag ctg gac ctg aca	288
Pro Glu Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr	
85 90 95	
gac aac cag ctg acc aca ctg ccc ctg gct gga ctt ggg ggc ttg atg	336
Asp Asn Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met	
100 105 110	
cat ctg aag ctc aaa ggg aac ctt gct ctc tcc cag gcc ttc tcc aag	384
His Leu Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys	
115 120 125	
gac agt ttc cca aaa ctg agg atc ctg gag gtg cct tat gcc tac cag	432
Asp Ser Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln	
130 135 140	
tgc tgt ccc tat ggg atg tgt gcc agc ttc ttc aag gcc tct ggg cag	480
Cys Cys Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln	
145 150 155 160	
tgg gag gct gaa gac ctt cac ctt gat gat gag gag tct tca aaa agg	528
Trp Glu Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg	
165 170 175	
ccc ctg ggc ctc ctt gcc aga caa gca gag aac cac tat gac cag gac	576
Pro Leu Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp	

180										185										190										
ctg	gat	gag	ctc	cag	ctg	gag	atg	gag	gac	tca	aag	cca	cac	ccc	agt	624														
Leu	Asp	Glu	Leu	Gln	Leu	Glu	Met	Glu	Asp	Ser	Lys	Pro	His	Pro	Ser															
		195					200					205																		
gtc	cag	tgt	agc	cct	act	cca	ggc	ccc	ttc	aag	ccc	tgt	gag	tac	ctc	672														
Val	Gln	Cys	Ser	Pro	Thr	Pro	Gly	Pro	Phe	Lys	Pro	Cys	Glu	Tyr	Leu															
	210						215				220																			
ttt	gaa	agc	tgg	ggc	atc	cgc	ctg	gcc	gtg	tgg	gcc	atc	gtg	ttg	ctc	720														
Phe	Glu	Ser	Trp	Gly	Ile	Arg	Leu	Ala	Val	Trp	Ala	Ile	Val	Leu	Leu															
225					230					235					240															
tcc	gtg	ctc	tgc	aat	gga	ctg	gtg	ctg	ctg	acc	gtg	ttc	gct	ggc	ggg	768														
Ser	Val	Leu	Cys	Asn	Gly	Leu	Val	Leu	Leu	Thr	Val	Phe	Ala	Gly	Gly															
				245						250				255																
cct	gcc	ccc	ctg	ccc	ccg	gtc	aag	ttt	gtg	gta	ggg	gcg	att	gca	ggc	816														
Pro	Ala	Pro	Leu	Pro	Pro	Val	Lys	Phe	Val	Val	Gly	Ala	Ile	Ala	Gly															
			260					265					270																	
gcc	aac	acc	ttg	act	ggc	att	tcc	tgt	ggc	ctt	cta	gcc	tca	gtc	gat	864														
Ala	Asn	Thr	Leu	Thr	Gly	Ile	Ser	Cys	Gly	Leu	Leu	Ala	Ser	Val	Asp															
		275					280					285																		
gcc	ctg	acc	ttt	ggg	cag	ttc	tct	gag	tac	gga	gcc	cgc	tgg	gag	acg	912														
Ala	Leu	Thr	Phe	Gly	Gln	Phe	Ser	Glu	Tyr	Gly	Ala	Arg	Trp	Glu	Thr															
	290					295					300																			
ggg	cta	ggc	tgc	cgg	gcc	act	ggc	ttc	ctg	gca	gta	ctt	ggg	tcg	gag	960														
Gly	Leu	Gly	Cys	Arg	Ala	Thr	Gly	Phe	Leu	Ala	Val	Leu	Gly	Ser	Glu															
305					310					315					320															
gca	tcg	gtg	ctg	ctg	ctc	act	ctg	gcc	gca	gtg	cag	tgc	agc	gtc	tcc	1008														
Ala	Ser	Val	Leu	Leu	Leu	Thr	Leu	Ala	Ala	Val	Gln	Cys	Ser	Val	Ser															
				325						330				335																
gtc	tcc	tgt	gtc	cgg	gcc	tat	ggg	aag	tcc	ccc	tcc	ctg	ggc	agc	gtt	1056														
Val	Ser	Cys	Val	Arg	Ala	Tyr	Gly	Lys	Ser	Pro	Ser	Leu	Gly	Ser	Val															
			340					345					350																	
cga	gca	ggg	gtc	cta	ggc	tgc	ctg	gca	ctg	gca	ggg	ctg	gcc	gcc	gca	1104														
Arg	Ala	Gly	Val	Leu	Gly	Cys	Leu	Ala	Leu	Ala	Gly	Leu	Ala	Ala	Ala															
		355					360					365																		
ctg	ccc	ctg	gcc	tca	gtg	gga	gaa	tac	ggg	gcc	tcc	cca	ctc	tgc	ctg	1152														
Leu	Pro	Leu	Ala	Ser	Val	Gly	Glu	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu															
	370					375						380																		
ccc	tac	gcg	cca	cct	gag	ggg	cag	cca	gca	gcc	ctg	ggc	ttc	acc	gtg	1200														
Pro	Tyr	Ala	Pro	Pro	Glu	Gly	Gln	Pro	Ala	Ala	Leu	Gly	Phe	Thr	Val															
385					390					395					400															
gcc	ctg	gtg	atg	atg	aac	tcc	ttc	tgt	ttc	ctg	gtc	gtg	gcc	ggg	gcc	1248														
Ala	Leu	Val	Met	Met	Asn	Ser	Phe	Cys	Phe	Leu	Val	Val	Ala	Gly	Ala															
				405					410					415																

tac atc aaa ctg tac tgt gac ctg ccg cgg ggc gac ttt gag gcc gtg	1296
Tyr Ile Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val	
420 425 430	
tgg gac tgc gcc atg gtg agg cac gtg gcc tgg ctc atc ttc gca gac	1344
Trp Asp Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp	
435 440 445	
ggg ctc ctc tac tgt ccc gtg gcc ttc ctc agc ttc gcc tcc atg ctg	1392
Gly Leu Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu	
450 455 460	
ggc ctc ttc cct gtc acg ccc gag gcc gtc aag tct gtc ctg ctg gtg	1440
Gly Leu Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val	
465 470 475 480	
gtg ctg ccc ctg cct gcc tgc ctc aac cca ctg ctg tac ctg ctc ttc	1488
Val Leu Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe	
485 490 495	
aac ccc cac ttc cgg gat gac ctt cgg cgg ctt cgg ccc cgc gca ggg	1536
Asn Pro His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly	
500 505 510	
gac tca ggg ccc cta gcc tat gct gcg gcc ggg gag ctg gag aag agc	1584
Asp Ser Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Lys Ser	
515 520 525	
tcc tgt gat tct acc cag gcc ctg gta gcc ttc tct gat gtg gat ctc	1632
Ser Cys Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu	
530 535 540	
att ctg gaa gct tct gaa gct ggg cgg ccc cct ggg ctg gag acc tat	1680
Ile Leu Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr	
545 550 555 560	
ggc ttc ccc tca gtg acc ctc atc tcc tgt cag cag cca ggg gcc ccc	1728
Gly Phe Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro	
565 570 575	
agg ctg gag ggc agc cat tgt gta gag cca gag ggg aac cac ttt ggg	1776
Arg Leu Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly	
580 585 590	
aac ccc caa ccc tcc atg gat gga gaa ctg ctg ctg agg gca gag gga	1824
Asn Pro Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly	
595 600 605	
tct acg cca gca ggt gga ggc ttg tca ggg ggt ggc ggc ttt cag ccc	1872
Ser Thr Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro	
610 615 620	
tct ggc ttg gcc ttt gct tca cac gtg	1899
Ser Gly Leu Ala Phe Ala Ser His Val	
625 630	

&lt;210&gt; 7

&lt;211&gt; 2711

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) .. (2208)

&lt;400&gt; 7

ggg	ctg	cac	aat	ctg	gag	aca	cta	gac	ctg	aat	tat	aac	aag	ctg	cag	48
Gly	Leu	His	Asn	Leu	Glu	Thr	Leu	Asp	Leu	Asn	Tyr	Asn	Lys	Leu	Gln	
1				5					10					15		
gag	ttc	cct	gtg	gcc	atc	cgg	acc	ctg	ggc	aga	ctg	cag	gaa	ctg	ggg	96
Glu	Phe	Pro	Val	Ala	Ile	Arg	Thr	Leu	Gly	Arg	Leu	Gln	Glu	Leu	Gly	
			20					25					30			
ttc	cat	aac	aac	aac	atc	aag	gcc	atc	cca	gaa	aag	gcc	ttc	atg	ggg	144
Phe	His	Asn	Asn	Asn	Ile	Lys	Ala	Ile	Pro	Glu	Lys	Ala	Phe	Met	Gly	
		35					40					45				
aac	cct	ctg	cta	cag	acg	ata	cac	ttt	tat	gat	aac	cca	atc	cag	ttt	192
Asn	Pro	Leu	Leu	Gln	Thr	Ile	His	Phe	Tyr	Asp	Asn	Pro	Ile	Gln	Phe	
	50					55					60					
gtg	gga	aga	tcg	gca	ttc	cag	tac	ctg	cct	aaa	ctc	cac	aca	cta	tct	240
Val	Gly	Arg	Ser	Ala	Phe	Gln	Tyr	Leu	Pro	Lys	Leu	His	Thr	Leu	Ser	
65					70					75					80	
ctg	aat	ggg	gcc	atg	gac	atc	cag	gag	ttt	cca	gat	ctc	aaa	ggc	acc	288
Leu	Asn	Gly	Ala	Met	Asp	Ile	Gln	Glu	Phe	Pro	Asp	Leu	Lys	Gly	Thr	
				85					90					95		
acc	agc	ctg	gag	atc	ctg	acc	ctg	acc	cgc	gca	ggc	atc	cgg	ctg	ctc	336
Thr	Ser	Leu	Glu	Ile	Leu	Thr	Leu	Thr	Arg	Ala	Gly	Ile	Arg	Leu	Leu	
			100					105					110			
cca	tcg	ggg	atg	tgc	caa	cag	ctg	ccc	agg	ctc	cga	gtc	ctg	gaa	ctg	384
Pro	Ser	Gly	Met	Cys	Gln	Gln	Leu	Pro	Arg	Leu	Arg	Val	Leu	Glu	Leu	
		115					120					125				
tct	cac	aat	caa	att	gag	gag	ctg	ccc	agc	ctg	cac	agg	tgt	cag	aaa	432
Ser	His	Asn	Gln	Ile	Glu	Glu	Leu	Pro	Ser	Leu	His	Arg	Cys	Gln	Lys	
	130					135					140					
ttg	gag	gaa	atc	ggc	ctc	caa	cac	aac	cgc	atc	tgg	gaa	att	gga	gct	480
Leu	Glu	Glu	Ile	Gly	Leu	Gln	His	Asn	Arg	Ile	Trp	Glu	Ile	Gly	Ala	
145					150					155					160	
gac	acc	ttc	agc	cag	ctg	agc	tcc	ctg	caa	gcc	ctg	gat	ctt	agc	tgg	528
Asp	Thr	Phe	Ser	Gln	Leu	Ser	Ser	Leu	Gln	Ala	Leu	Asp	Leu	Ser	Trp	
				165				170						175		
aac	gcc	atc	cgg	tcc	atc	cac	cct	gag	gcc	ttc	tcc	acc	ctg	cac	tcc	576
Asn	Ala	Ile	Arg	Ser	Ile	His	Pro	Glu	Ala	Phe	Ser	Thr	Leu	His	Ser	

180	185	190	
ctg gtc aag ctg gac ctg aca gac aac cag ctg acc aca ctg ccc ctg Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu Pro Leu 195 200 205			624
gct gga ctt ggg ggc ttg atg cat ctg aag ctc aaa ggg aac ctt gct Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala 210 215 220			672
ctc tcc cag gcc ttc tcc aag gac agt ttc cca aaa ctg agg atc ctg Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu 225 230 235 240			720
gag gtg cct tat gcc tac cag tgc tgt ccc tat ggg atg tgt gcc agc Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser 245 250 255			768
ttc ttc aag gcc tct ggg cag tgg gag gct gaa gac ctt cac ctt gat Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp 260 265 270			816
gat gag gag tct tca aaa agg ccc ctg ggc ctc ctt gcc aga caa gca Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala 275 280 285			864
gag aac cac tat gac cag gac ctg gat gag ctc cag ctg gag atg gag Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu 290 295 300			912
gac tca aag cca cac ccc agt gtc cag tgt agc cct act cca ggc ccc Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro 305 310 315 320			960
ttc aag ccc tgt gag tac ctc ttt gaa agc tgg ggc atc cgc ctg gcc Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala 325 330 335			1008
gtg tgg gcc atc gtg ttg ctc tcc gtg ctc tgc aat gga ctg gtg ctg Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu 340 345 350			1056
ctg acc gtg ttc gct ggc ggg cct gcc ccc ctg ccc ccg gtc aag ttt Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro Val Lys Phe 355 360 365			1104
gtg gta ggt gcg att gca ggc gcc aac acc ttg act ggc att tcc tgt Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys 370 375 380			1152
ggc ctt cta gcc tca gtc gat gcc ctg acc ttt ggt cag ttc tct gag Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu 385 390 395 400			1200
tac gga gcc cgc tgg gag acg ggg cta ggc tgc cgg gcc act ggc ttc Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe 405 410 415			1248



ctg gca gta ctt ggg tgc gag gca tgc gtg ctg ctg ctc act ctg gcc	1296
Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala	
420 425 430	
gca gtg cag tgc agc gtc tcc gtc tcc tgt gtc cgg gcc tat ggg aag	1344
Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys	
435 440 445	
tcc ccc tcc ctg ggc agc gtt cga gca ggg gtc cta ggc tgc ctg gca	1392
Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala	
450 455 460	
ctg gca ggg ctg gcc gcc gca ctg ccc ctg gcc tca gtg gga gaa tac	1440
Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr	
465 470 475 480	
ggg gcc tcc cca ctc tgc ctg ccc tac gcg cca cct gag ggt cag cca	1488
Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro	
485 490 495	
gca gcc ctg ggc ttc acc gtg gcc ctg gtg atg atg aac tcc ttc tgt	1536
Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys	
500 505 510	
ttc ctg gtc gtg gcc ggt gcc tac atc aaa ctg tac tgt gac ctg ccg	1584
Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro	
515 520 525	
cgg ggc gac ttt gag gcc gtg tgg gac tgc gcc atg gtg agg cac gtg	1632
Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val	
530 535 540	
gcc tgg ctc atc ttc gca gac ggg ctc ctc tac tgt ccc gtg gcc ttc	1680
Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe	
545 550 555 560	
ctc agc ttc gcc tcc atg ctg ggc ctc ttc cct gtc acg ccc gag gcc	1728
Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala	
565 570 575	
gtc aag tct gtc ctg ctg gtg gtg ctg ccc ctg cct gcc tgc ctc aac	1776
Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn	
580 585 590	
cca ctg ctg tac ctg ctc ttc aac ccc cac ttc cgg gat gac ctt cgg	1824
Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg	
595 600 605	
cgg ctt cgg ccc cgc gca ggg gac tca ggg ccc cta gcc tat gct gcg	1872
Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala	
610 615 620	
gcc ggg gag ctg gag aag agc tcc tgt gat tct acc cag gcc ctg gta	1920
Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val	
625 630 635 640	

```

gcc ttc tct gat gtg gat ctc att ctg gaa gct tct gaa gct ggg cgg 1968
Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg
      645                      650                      655

ccc cct ggg ctg gag acc tat ggc ttc ccc tca gtg acc ctc atc tcc 2016
Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser
      660                      665                      670

tgt cag cag cca ggg gcc ccc agg ctg gag ggc agc cat tgt gta gag 2064
Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu
      675                      680                      685

cca gag ggg aac cac ttt ggg aac ccc caa ccc tcc atg gat gga gaa 2112
Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu
      690                      695                      700

ctg ctg ctg agg gca gag gga tct acg cca gca ggt gga ggc ttg tca 2160
Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser
      705                      710                      715                      720

ggg ggt ggc ggc ttt cag ccc tct ggc ttg gcc ttt gct tca cac gtg 2208
Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val
      725                      730                      735

taaatatccc tccccattct tctcttcccc tctcttccct ttcctctctc cccctcggtg 2268

aatgatggct gcttctaataa caaatacaac caaaactcag cagtgtgata tatagcagga 2328

tggcccagta cctgggtcca ctgatcacct ctctcctgtg accatcacca acgggtgcct 2388

cttggcctgg ctttcccttg gccttccctca gcttcacctt gatactgggc ctcttccttg 2448

tcatgtctga agctgtggac cagagacctg gacttttgtc tgcttaaggg aaatgagggga 2508

agtaaagaca gtgaaggggt ggaggggttga tcaggggcaca gtggacaggg agacctcaca 2568

gagaaaggcc tggaaggtga tttcccggtg gactcatgga taggatacaa aatgtgttcc 2628

atgtaccatt aatcttgaca tatgccatgc ataaagactt cctattaaaa taagctttgg 2688

aagagattaa aaaaaaaaaa aaa 2711

```

<210> 8

<211> 736

<212> PRT

<213> Homo sapiens

<400> 8

```

Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln
  1                      5                      10                      15

Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly
      20                      25                      30

Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly
      35                      40                      45

```

Asn	Pro	Leu	Leu	Gln	Thr	Ile	His	Phe	Tyr	Asp	Asn	Pro	Ile	Gln	Phe	50	55	60
Val	Gly	Arg	Ser	Ala	Phe	Gln	Tyr	Leu	Pro	Lys	Leu	His	Thr	Leu	Ser	65	70	75
Leu	Asn	Gly	Ala	Met	Asp	Ile	Gln	Glu	Phe	Pro	Asp	Leu	Lys	Gly	Thr	85	90	95
Thr	Ser	Leu	Glu	Ile	Leu	Thr	Leu	Thr	Arg	Ala	Gly	Ile	Arg	Leu	Leu	100	105	110
Pro	Ser	Gly	Met	Cys	Gln	Gln	Leu	Pro	Arg	Leu	Arg	Val	Leu	Glu	Leu	115	120	125
Ser	His	Asn	Gln	Ile	Glu	Glu	Leu	Pro	Ser	Leu	His	Arg	Cys	Gln	Lys	130	135	140
Leu	Glu	Glu	Ile	Gly	Leu	Gln	His	Asn	Arg	Ile	Trp	Glu	Ile	Gly	Ala	145	150	155
Asp	Thr	Phe	Ser	Gln	Leu	Ser	Ser	Leu	Gln	Ala	Leu	Asp	Leu	Ser	Trp	165	170	175
Asn	Ala	Ile	Arg	Ser	Ile	His	Pro	Glu	Ala	Phe	Ser	Thr	Leu	His	Ser	180	185	190
Leu	Val	Lys	Leu	Asp	Leu	Thr	Asp	Asn	Gln	Leu	Thr	Thr	Leu	Pro	Leu	195	200	205
Ala	Gly	Leu	Gly	Gly	Leu	Met	His	Leu	Lys	Leu	Lys	Gly	Asn	Leu	Ala	210	215	220
Leu	Ser	Gln	Ala	Phe	Ser	Lys	Asp	Ser	Phe	Pro	Lys	Leu	Arg	Ile	Leu	225	230	235
Glu	Val	Pro	Tyr	Ala	Tyr	Gln	Cys	Cys	Pro	Tyr	Gly	Met	Cys	Ala	Ser	245	250	255
Phe	Phe	Lys	Ala	Ser	Gly	Gln	Trp	Glu	Ala	Glu	Asp	Leu	His	Leu	Asp	260	265	270
Asp	Glu	Glu	Ser	Ser	Lys	Arg	Pro	Leu	Gly	Leu	Leu	Ala	Arg	Gln	Ala	275	280	285
Glu	Asn	His	Tyr	Asp	Gln	Asp	Leu	Asp	Glu	Leu	Gln	Leu	Glu	Met	Glu	290	295	300
Asp	Ser	Lys	Pro	His	Pro	Ser	Val	Gln	Cys	Ser	Pro	Thr	Pro	Gly	Pro	305	310	315
Phe	Lys	Pro	Cys	Glu	Tyr	Leu	Phe	Glu	Ser	Trp	Gly	Ile	Arg	Leu	Ala	325	330	335
Val	Trp	Ala	Ile	Val	Leu	Leu	Ser	Val	Leu	Cys	Asn	Gly	Leu	Val	Leu	340	345	350

Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro Val Lys Phe  
 355 360 365  
 Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys  
 370 375 380  
 Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu  
 385 390 395 400  
 Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe  
 405 410 415  
 Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala  
 420 425 430  
 Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys  
 435 440 445  
 Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala  
 450 455 460  
 Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr  
 465 470 475 480  
 Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro  
 485 490 495  
 Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys  
 500 505 510  
 Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro  
 515 520 525  
 Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val  
 530 535 540  
 Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe  
 545 550 555 560  
 Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala  
 565 570 575  
 Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn  
 580 585 590  
 Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg  
 595 600 605  
 Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala  
 610 615 620  
 Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val  
 625 630 635 640  
 Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg  
 645 650 655

Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser  
660 665 670

Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu  
675 680 685

Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu  
690 695 700

Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser  
705 710 715 720

Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val  
725 730 735

&lt;210&gt; 9

&lt;211&gt; 2208

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(2208)

&lt;400&gt; 9

ggg ctg cac aat ctg gag aca cta gac ctg aat tat aac aag ctg cag 48  
Gly Leu His Asn Leu Glu Thr Leu Asp Leu Asn Tyr Asn Lys Leu Gln  
1 5 10 15

gag ttc cct gtg gcc atc cgg acc ctg ggc aga ctg cag gaa ctg ggg 96  
Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln Glu Leu Gly  
20 25 30

ttc cat aac aac aac atc aag gcc atc cca gaa aag gcc ttc atg ggg 144  
Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala Phe Met Gly  
35 40 45

aac cct ctg cta cag acg ata cac ttt tat gat aac cca atc cag ttt 192  
Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro Ile Gln Phe  
50 55 60

gtg gga aga tcg gca ttc cag tac ctg cct aaa ctc cac aca cta tct 240  
Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His Thr Leu Ser  
65 70 75 80

ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc aaa ggc acc 288  
Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu Lys Gly Thr  
85 90 95

acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc cgg ctg ctc 336  
Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile Arg Leu Leu  
100 105 110

cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc ctg gaa ctg 384  
Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val Leu Glu Leu

115	120	125	
tct cac aat caa att gag gag ctg ccc agc ctg cac agg tgt cag aaa			432
Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg Cys Gln Lys			
130	135	140	
ttg gag gaa atc ggc ctc caa cac aac cgc atc tgg gaa att gga gct			480
Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu Ile Gly Ala			
145	150	155	160
gac acc ttc agc cag ctg agc tcc ctg caa gcc ctg gat ctt agc tgg			528
Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp Leu Ser Trp			
165	170	175	
aac gcc atc cgg tcc atc cac cct gag gcc ttc tcc acc ctg cac tcc			576
Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr Leu His Ser			
180	185	190	
ctg gtc aag ctg gac ctg aca gac aac cag ctg acc aca ctg ccc ctg			624
Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr Leu Pro Leu			
195	200	205	
gct gga ctt ggg ggc ttg atg cat ctg aag ctc aaa ggg aac ctt gct			672
Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly Asn Leu Ala			
210	215	220	
ctc tcc cag gcc ttc tcc aag gac agt ttc cca aaa ctg agg atc ctg			720
Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu Arg Ile Leu			
225	230	235	240
gag gtg cct tat gcc tac cag tgc tgt ccc tat ggg atg tgt gcc agc			768
Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met Cys Ala Ser			
245	250	255	
ttc ttc aag gcc tct ggg cag tgg gag gct gaa gac ctt cac ctt gat			816
Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu His Leu Asp			
260	265	270	
gat gag gag tct tca aaa agg ccc ctg ggc ctc ctt gcc aga caa gca			864
Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala Arg Gln Ala			
275	280	285	
gag aac cac tat gac cag gac ctg gat gag ctc cag ctg gag atg gag			912
Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu Glu Met Glu			
290	295	300	
gac tca aag cca cac ccc agt gtc cag tgt agc cct act cca ggc ccc			960
Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr Pro Gly Pro			
305	310	315	320
ttc aag ccc tgt gag tac ctc ttt gaa agc tgg ggc atc cgc ctg gcc			1008
Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile Arg Leu Ala			
325	330	335	
gtg tgg gcc atc gtg ttg ctc tcc gtg ctc tgc aat gga ctg gtg ctg			1056
Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly Leu Val Leu			
340	345	350	

ctg acc gtg ttc gct ggc ggg cct gcc ccc ctg ccc ccg gtc aag ttt	1104
Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro Val Lys Phe	
355 360 365	
gtg gta ggt gcg att gca ggc gcc aac acc ttg act ggc att tcc tgt	1152
Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly Ile Ser Cys	
370 375 380	
ggc ctt cta gcc tca gtc gat gcc ctg acc ttt ggt cag ttc tct gag	1200
Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln Phe Ser Glu	
385 390 395 400	
tac gga gcc cgc tgg gag acg ggg cta ggc tgc cgg gcc act ggc ttc	1248
Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala Thr Gly Phe	
405 410 415	
ctg gca gta ctt ggg tcg gag gca tcg gtg ctg ctg ctc act ctg gcc	1296
Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu Thr Leu Ala	
420 425 430	
gca gtg cag tgc agc gtc tcc gtc tcc tgt gtc cgg gcc tat ggg aag	1344
Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala Tyr Gly Lys	
435 440 445	
tcc ccc tcc ctg ggc agc gtt cga gca ggg gtc cta ggc tgc ctg gca	1392
Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly Cys Leu Ala	
450 455 460	
ctg gca ggg ctg gcc gcc gca ctg ccc ctg gcc tca gtg gga gaa tac	1440
Leu Ala Gly Leu Ala Ala Ala Leu Pro Leu Ala Ser Val Gly Glu Tyr	
465 470 475 480	
ggg gcc tcc cca ctc tgc ctg ccc tac gcg cca cct gag ggt cag cca	1488
Gly Ala Ser Pro Leu Cys Leu Pro Tyr Ala Pro Pro Glu Gly Gln Pro	
485 490 495	
gca gcc ctg ggc ttc acc gtg gcc ctg gtg atg atg aac tcc ttc tgt	1536
Ala Ala Leu Gly Phe Thr Val Ala Leu Val Met Met Asn Ser Phe Cys	
500 505 510	
ttc ctg gtc gtg gcc ggt gcc tac atc aaa ctg tac tgt gac ctg ccg	1584
Phe Leu Val Val Ala Gly Ala Tyr Ile Lys Leu Tyr Cys Asp Leu Pro	
515 520 525	
cgg ggc gac ttt gag gcc gtg tgg gac tgc gcc atg gtg agg cac gtg	1632
Arg Gly Asp Phe Glu Ala Val Trp Asp Cys Ala Met Val Arg His Val	
530 535 540	
gcc tgg ctc atc ttc gca gac ggg ctc ctc tac tgt ccc gtg gcc ttc	1680
Ala Trp Leu Ile Phe Ala Asp Gly Leu Leu Tyr Cys Pro Val Ala Phe	
545 550 555 560	
ctc agc ttc gcc tcc atg ctg ggc ctc ttc cct gtc acg ccc gag gcc	1728
Leu Ser Phe Ala Ser Met Leu Gly Leu Phe Pro Val Thr Pro Glu Ala	
565 570 575	

gtc aag tct gtc ctg ctg gtg gtg ctg ccc ctg cct gcc tgc ctc aac 1776  
 Val Lys Ser Val Leu Leu Val Val Leu Pro Leu Pro Ala Cys Leu Asn  
 580 585 590

cca ctg ctg tac ctg ctc ttc aac ccc cac ttc cgg gat gac ctt cgg 1824  
 Pro Leu Leu Tyr Leu Leu Phe Asn Pro His Phe Arg Asp Asp Leu Arg  
 595 600 605

cgg ctt cgg ccc cgc gca ggg gac tca ggg ccc cta gcc tat gct gcg 1872  
 Arg Leu Arg Pro Arg Ala Gly Asp Ser Gly Pro Leu Ala Tyr Ala Ala  
 610 615 620

gcc ggg gag ctg gag aag agc tcc tgt gat tct acc cag gcc ctg gta 1920  
 Ala Gly Glu Leu Glu Lys Ser Ser Cys Asp Ser Thr Gln Ala Leu Val  
 625 630 635 640

gcc ttc tct gat gtg gat ctc att ctg gaa gct tct gaa gct ggg cgg 1968  
 Ala Phe Ser Asp Val Asp Leu Ile Leu Glu Ala Ser Glu Ala Gly Arg  
 645 650 655

ccc cct ggg ctg gag acc tat ggc ttc ccc tca gtg acc ctc atc tcc 2016  
 Pro Pro Gly Leu Glu Thr Tyr Gly Phe Pro Ser Val Thr Leu Ile Ser  
 660 665 670

tgt cag cag cca ggg gcc ccc agg ctg gag ggc agc cat tgt gta gag 2064  
 Cys Gln Gln Pro Gly Ala Pro Arg Leu Glu Gly Ser His Cys Val Glu  
 675 680 685

cca gag ggg aac cac ttt ggg aac ccc caa ccc tcc atg gat gga gaa 2112  
 Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met Asp Gly Glu  
 690 695 700

ctg ctg ctg agg gca gag gga tct acg cca gca ggt gga ggc ttg tca 2160  
 Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly Gly Leu Ser  
 705 710 715 720

ggg ggt ggc ggc ttt cag ccc tct ggc ttg gcc ttt gct tca cac gtg 2208  
 Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala Ser His Val  
 725 730 735

<210> 10  
 <211> 3492  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (104)...(3004)

<400> 10  
 ccgccsgcgg tgcagcccg cgggaccggg aggcggcagc tgcggccacc gcgccgtgcg 60

tccgcgcccg gccgccaggt gcccagtag cccgaccgcc gag atg ccc agc ccg 115  
 Met Pro Ser Pro  
 1

ccg ggg ctc cgg gcg cta tgg ctt tgc gcc gcg ctg tgc gct tcc cgg 163



Pro	Gly	Leu	Arg	Ala	Leu	Trp	Leu	Cys	Ala	Ala	Leu	Cys	Ala	Ser	Arg		
5					10					15					20		
agg	gcc	ggc	ggc	gcc	ccc	cag	ccc	ggc	ccg	ggg	ccc	acc	gcc	tgc	ccg		211
Arg	Ala	Gly	Gly	Ala	Pro	Gln	Pro	Gly	Pro	Gly	Pro	Thr	Ala	Cys	Pro		
				25				30						35			
gcc	ccc	tgc	cac	tgc	cag	gag	gac	ggc	atc	atg	ctg	tct	gcc	gac	tgc		259
Ala	Pro	Cys	His	Cys	Gln	Glu	Asp	Gly	Ile	Met	Leu	Ser	Ala	Asp	Cys		
			40				45						50				
tct	gag	ctc	ggg	ctg	tcc	gcc	gtt	ccg	ggg	gac	ctg	gac	ccc	ctg	acg		307
Ser	Glu	Leu	Gly	Leu	Ser	Ala	Val	Pro	Gly	Asp	Leu	Asp	Pro	Leu	Thr		
	55						60					65					
gct	tac	ctg	gac	ctc	agc	atg	aac	aac	ctc	aca	gag	ctt	cag	cct	ggc		355
Ala	Tyr	Leu	Asp	Leu	Ser	Met	Asn	Asn	Leu	Thr	Glu	Leu	Gln	Pro	Gly		
	70					75					80						
ctc	ttc	cac	cac	ctg	cgc	ttc	ttg	gag	gag	ctg	cgt	ctc	tct	ggg	aac		403
Leu	Phe	His	His	Leu	Arg	Phe	Leu	Glu	Glu	Leu	Arg	Leu	Ser	Gly	Asn		
	85				90				95						100		
cat	ctc	tca	cac	atc	cca	gga	caa	gca	ttc	tct	ggt	ctc	tac	agc	ctg		451
His	Leu	Ser	His	Ile	Pro	Gly	Gln	Ala	Phe	Ser	Gly	Leu	Tyr	Ser	Leu		
				105				110						115			
aaa	atc	ctg	atg	ctg	cag	aac	aat	cag	ctg	gga	gga	atc	ccc	gca	gag		499
Lys	Ile	Leu	Met	Leu	Gln	Asn	Asn	Gln	Leu	Gly	Gly	Ile	Pro	Ala	Glu		
			120					125					130				
gcg	ctg	tgg	gag	ctg	ccg	agc	ctg	cag	tgc	ctg	cgc	cta	gat	gcc	aac		547
Ala	Leu	Trp	Glu	Leu	Pro	Ser	Leu	Gln	Ser	Leu	Arg	Leu	Asp	Ala	Asn		
			135				140					145					
ctc	atc	tcc	ctg	gtc	ccg	gag	agg	agc	ttt	gag	ggg	ctg	tcc	tcc	ctc		595
Leu	Ile	Ser	Leu	Val	Pro	Glu	Arg	Ser	Phe	Glu	Gly	Leu	Ser	Ser	Leu		
	150					155					160						
cgc	cac	ctc	tgg	ctg	gac	gac	aat	gca	ctc	acg	gag	atc	cct	gtc	agg		643
Arg	His	Leu	Trp	Leu	Asp	Asp	Asn	Ala	Leu	Thr	Glu	Ile	Pro	Val	Arg		
					170				175						180		
gcc	ctc	aac	aac	ctc	cct	gcc	ctg	cag	gcc	atg	acc	ctg	gcc	ctc	aac		691
Ala	Leu	Asn	Asn	Leu	Pro	Ala	Leu	Gln	Ala	Met	Thr	Leu	Ala	Leu	Asn		
				185				190						195			
cgc	atc	agc	cac	atc	ccc	gac	tac	gcg	ttc	cag	aat	ctc	acc	agc	ctt		739
Arg	Ile	Ser	His	Ile	Pro	Asp	Tyr	Ala	Phe	Gln	Asn	Leu	Thr	Ser	Leu		
			200					205					210				
gtg	gtg	ctg	cat	ttg	cat	aac	aac	cgc	atc	cag	cat	ctg	ggg	acc	cac		787
Val	Val	Leu	His	Leu	His	Asn	Asn	Arg	Ile	Gln	His	Leu	Gly	Thr	His		
			215				220					225					
agc	ttc	gag	ggg	ctg	cac	aat	ctg	gag	aca	cta	gac	ctg	aat	tat	aac		835
Ser	Phe	Glu	Gly	Leu	His	Asn	Leu	Glu	Thr	Leu	Asp	Leu	Asn	Tyr	Asn		

230	235	240	
aag ctg cag gag ttc cct gtg gcc atc cgg acc ctg ggc aga ctg cag Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu Gly Arg Leu Gln 245 250 255 260			883
gaa ctg ggg ttc cat aac aac aac atc aag gcc atc cca gaa aag gcc Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile Pro Glu Lys Ala 265 270 275			931
ttc atg ggg aac cct ctg cta cag acg ata cac ttt tat gat aac cca Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe Tyr Asp Asn Pro 280 285 290			979
atc cag ttt gtg gga aga tcg gca ttc cag tac ctg cct aaa ctc cac Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu Pro Lys Leu His 295 300 305			1027
aca cta tct ctg aat ggt gcc atg gac atc cag gag ttt cca gat ctc Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu Phe Pro Asp Leu 310 315 320			1075
aaa ggc acc acc agc ctg gag atc ctg acc ctg acc cgc gca ggc atc Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr Arg Ala Gly Ile 325 330 335 340			1123
cgg ctg ctc cca tcg ggg atg tgc caa cag ctg ccc agg ctc cga gtc Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro Arg Leu Arg Val 345 350 355			1171
ctg gaa ctg tct cac aat caa att gag gag ctg ccc agc ctg cac agg Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro Ser Leu His Arg 360 365 370			1219
tgt cag aaa ttg gag gaa atc ggc ctc caa cac aac cgc atc tgg gaa Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn Arg Ile Trp Glu 375 380 385			1267
att gga gct gac acc ttc agc cag ctg agc tcc ctg caa gcc ctg gat Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu Gln Ala Leu Asp 390 395 400			1315
ctt agc tgg aac gcc atc cgg tcc atc cac cct gag gcc ttc tcc acc Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu Ala Phe Ser Thr 405 410 415 420			1363
ctg cac tcc ctg gtc aag ctg gac ctg aca gac aac cag ctg acc aca Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn Gln Leu Thr Thr 425 430 435			1411
ctg ccc ctg gct gga ctt ggg ggc ttg atg cat ctg aag ctc aaa ggg Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu Lys Leu Lys Gly 440 445 450			1459
aac ctt gct ctc tcc cag gcc ttc tcc aag gac agt ttc cca aaa ctg Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser Phe Pro Lys Leu 455 460 465			1507

agg atc ctg gag gtg cct tat gcc tac cag tgc tgt ccc tat ggg atg	1555
Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys Pro Tyr Gly Met	
470 475 480	
tgt gcc agc ttc ttc aag gcc tct ggg cag tgg gag gct gaa gac ctt	1603
Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu Ala Glu Asp Leu	
485 490 495 500	
cac ctt gat gat gag gag tct tca aaa agg ccc ctg ggc ctc ctt gcc	1651
His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu Gly Leu Leu Ala	
505 510 515	
aga caa gca gag aac cac tat gac cag gac ctg gat gag ctc cag ctg	1699
Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp Glu Leu Gln Leu	
520 525 530	
gag atg gag gac tca aag cca cac ccc agt gtc cag tgt agc cct act	1747
Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln Cys Ser Pro Thr	
535 540 545	
cca ggc ccc ttc aag ccc tgt gag tac ctc ttt gaa agc tgg ggc atc	1795
Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu Ser Trp Gly Ile	
550 555 560	
cgc ctg gcc gtg tgg gcc atc gtg ttg ctc tcc gtg ctc tgc aat gga	1843
Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val Leu Cys Asn Gly	
565 570 575 580	
ctg gtg ctg ctg acc gtg ttc gct ggc ggg cct gcc ccc ctg ccc ccg	1891
Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Ala Pro Leu Pro Pro	
585 590 595	
gtc aag ttt gtg gta ggt gcg att gca ggc gcc aac acc ttg act ggc	1939
Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn Thr Leu Thr Gly	
600 605 610	
att tcc tgt ggc ctt cta gcc tca gtc gat gcc ctg acc ttt ggt cag	1987
Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu Thr Phe Gly Gln	
615 620 625	
ttc tct gag tac gga gcc cgc tgg gag acg ggg cta ggc tgc cgg gcc	2035
Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu Gly Cys Arg Ala	
630 635 640	
act ggc ttc ctg gca gta ctt ggg tgc gag gca tgc gtg ctg ctg ctc	2083
Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser Val Leu Leu Leu	
645 650 655 660	
act ctg gcc gca gtg cag tgc agc gtc tcc gtc tcc tgt gtc cgg gcc	2131
Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser Cys Val Arg Ala	
665 670 675	
tat ggg aag tcc ccc tcc ctg ggc agc gtt cga gca ggg gtc cta ggc	2179
Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala Gly Val Leu Gly	
680 685 690	

tgc	ctg	gca	ctg	gca	ggg	ctg	gcc	gcc	gca	ctg	ccc	ctg	gcc	tca	gtg	2227
Cys	Leu	Ala	Leu	Ala	Gly	Leu	Ala	Ala	Ala	Leu	Pro	Leu	Ala	Ser	Val	
		695					700					705				
gga	gaa	tac	ggg	gcc	tcc	cca	ctc	tgc	ctg	ccc	tac	gcg	cca	cct	gag	2275
Gly	Glu	Tyr	Gly	Ala	Ser	Pro	Leu	Cys	Leu	Pro	Tyr	Ala	Pro	Pro	Glu	
	710					715					720					
ggt	cag	cca	gca	gcc	ctg	ggc	ttc	acc	gtg	gcc	ctg	gtg	atg	atg	aac	2323
Gly	Gln	Pro	Ala	Ala	Leu	Gly	Phe	Thr	Val	Ala	Leu	Val	Met	Met	Asn	
	725				730					735					740	
tcc	ttc	tgt	ttc	ctg	gtc	gtg	gcc	ggc	gcc	tac	atc	aaa	ctg	tac	tgt	2371
Ser	Phe	Cys	Phe	Leu	Val	Val	Ala	Gly	Ala	Tyr	Ile	Lys	Leu	Tyr	Cys	
			745					750						755		
gac	ctg	ccg	cgg	ggc	gac	ttt	gag	gcc	gtg	tgg	gac	tgc	gcc	atg	gtg	2419
Asp	Leu	Pro	Arg	Gly	Asp	Phe	Glu	Ala	Val	Trp	Asp	Cys	Ala	Met	Val	
			760					765					770			
agg	cac	gtg	gcc	tgg	ctc	atc	ttc	gca	gac	ggg	ctc	ctc	tac	tgt	ccc	2467
Arg	His	Val	Ala	Trp	Leu	Ile	Phe	Ala	Asp	Gly	Leu	Leu	Tyr	Cys	Pro	
		775					780					785				
gtg	gcc	ttc	ctc	agc	ttc	gcc	tcc	atg	ctg	ggc	ctc	ttc	cct	gtc	acg	2515
Val	Ala	Phe	Leu	Ser	Phe	Ala	Ser	Met	Leu	Gly	Leu	Phe	Pro	Val	Thr	
	790					795					800					
ccc	gag	gcc	gtc	aag	tct	gtc	ctg	ctg	gtg	gtg	ctg	ccc	ctg	cct	gcc	2563
Pro	Glu	Ala	Val	Lys	Ser	Val	Leu	Leu	Val	Val	Leu	Pro	Leu	Pro	Ala	
	805				810					815					820	
tgc	ctc	aac	cca	ctg	ctg	tac	ctg	ctc	ttc	aac	ccc	cac	ttc	cgg	gat	2611
Cys	Leu	Asn	Pro	Leu	Leu	Tyr	Leu	Leu	Phe	Asn	Pro	His	Phe	Arg	Asp	
				825					830					835		
gac	ctt	cgg	cgg	ctt	cgg	ccc	cgc	gca	ggg	gac	tca	ggg	ccc	cta	gcc	2659
Asp	Leu	Arg	Arg	Leu	Arg	Pro	Arg	Ala	Gly	Asp	Ser	Gly	Pro	Leu	Ala	
			840					845					850			
tat	gct	gcg	gcc	ggg	gag	ctg	gag	aag	agc	tcc	tgt	gat	tct	acc	cag	2707
Tyr	Ala	Ala	Ala	Gly	Glu	Leu	Glu	Lys	Ser	Ser	Cys	Asp	Ser	Thr	Gln	
		855					860					865				
gcc	ctg	gta	gcc	ttc	tct	gat	gtg	gat	ctc	att	ctg	gaa	gct	tct	gaa	2755
Ala	Leu	Val	Ala	Phe	Ser	Asp	Val	Asp	Leu	Ile	Leu	Glu	Ala	Ser	Glu	
	870					875					880					
gct	ggg	cgg	ccc	cct	ggg	ctg	gag	acc	tat	ggc	ttc	ccc	tca	gtg	acc	2803
Ala	Gly	Arg	Pro	Pro	Gly	Leu	Glu	Thr	Tyr	Gly	Phe	Pro	Ser	Val	Thr	
	885				890					895					900	
ctc	atc	tcc	tgt	cag	cag	cca	ggg	gcc	ccc	agg	ctg	gag	ggc	agc	cat	2851
Leu	Ile	Ser	Cys	Gln	Gln	Pro	Gly	Ala	Pro	Arg	Leu	Glu	Gly	Ser	His	
				905					910					915		
tgt	gta	gag	cca	gag	ggg	aac	cac	ttt	ggg	aac	ccc	caa	ccc	tcc	atg	2899

Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro Gln Pro Ser Met  
 920 925 930

gat gga gaa ctg ctg ctg agg gca gag gga tct acg cca gca ggt gga 2947  
 Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr Pro Ala Gly Gly  
 935 940 945

ggc ttg tca ggg ggt ggc ggc ttt cag ccc tct ggc ttg gcc ttt gct 2995  
 Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro Ser Gly Leu Ala Phe Ala  
 950 955 960

tca cac gtg taaatatccc tcccattct tctcttcccc tctcttcctt 3044  
 Ser His Val  
 965

ttctctctctc cccctcggtg aatgatggct gcttctaaaa caaatacaac caaaactcag 3104  
 cagtgtgatac tatagcagga tggcccagta cctggctcca ctgatcacct ctctcctgtg 3164  
 accatcacca acgggtgect cttggcctgg ctttcccttg gccttctca gcttcacctt 3224  
 gatactgggc ctcttctctg tcatgtctga agctgtggac caragacctg gacttttgtc 3284  
 tgcttaaggg aaatgagggga agtaaagaca gtgaaggggt ggaggggtga tcagggcaca 3344  
 gtggacaggg agacctcaca raaaaaggcc tggaaggkga tttccctgtg gactcatggr 3404  
 taggawacaa aatgtgttcc atgtaccatt aatcttgaca tatgcatgc ataaaractt 3464  
 cctattaaaa taagctttgg ragagatt 3492

<210> 11  
 <211> 967  
 <212> PRT  
 <213> Homo sapiens

<400> 11  
 Met Pro Ser Pro Pro Gly Leu Arg Ala Leu Trp Leu Cys Ala Ala Leu  
 1 5 10 15  
 Cys Ala Ser Arg Arg Ala Gly Gly Ala Pro Gln Pro Gly Pro Gly Pro  
 20 25 30  
 Thr Ala Cys Pro Ala Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu  
 35 40 45  
 Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Ala Val Pro Gly Asp Leu  
 50 55 60  
 Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu  
 65 70 75 80  
 Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg  
 85 90 95  
 Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly  
 100 105 110

Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly  
 115 120 125  
 Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg  
 130 135 140  
 Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly  
 145 150 155 160  
 Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu  
 165 170 175  
 Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr  
 180 185 190  
 Leu Ala Leu Asn Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn  
 195 200 205  
 Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His  
 210 215 220  
 Leu Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp  
 225 230 235 240  
 Leu Asn Tyr Asn Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu  
 245 250 255  
 Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile  
 260 265 270  
 Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe  
 275 280 285  
 Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu  
 290 295 300  
 Pro Lys Leu His Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu  
 305 310 315 320  
 Phe Pro Asp Leu Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr  
 325 330 335  
 Arg Ala Gly Ile Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro  
 340 345 350  
 Arg Leu Arg Val Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro  
 355 360 365  
 Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn  
 370 375 380  
 Arg Ile Trp Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu  
 385 390 395 400  
 Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu  
 405 410 415

Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn  
 420 425 430  
 Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu  
 435 440 445  
 Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser  
 450 455 460  
 Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys  
 465 470 475 480  
 Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu  
 485 490 495  
 Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu  
 500 505 510  
 Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp  
 515 520 525  
 Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln  
 530 535 540  
 Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu  
 545 550 555 560  
 Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val  
 565 570 575  
 Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Ala  
 580 585 590  
 Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn  
 595 600 605  
 Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu  
 610 615 620  
 Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu  
 625 630 635 640  
 Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser  
 645 650 655  
 Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser  
 660 665 670  
 Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala  
 675 680 685  
 Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Leu Pro  
 690 695 700  
 Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr  
 705 710 715 720

Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val Ala Leu  
                     725                    730                    735  
 Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala Tyr Ile  
                     740                    745                    750  
 Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp  
                     755                    760                    765  
 Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu  
                     770                    775                    780  
 Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu  
                     785                    790                    795                    800  
 Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu  
                     805                    810                    815  
 Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro  
                     820                    825                    830  
 His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser  
                     835                    840                    845  
 Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys  
                     850                    855                    860  
 Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu  
                     865                    870                    875                    880  
 Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe  
                     885                    890                    895  
 Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu  
                     900                    905                    910  
 Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro  
                     915                    920                    925  
 Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr  
                     930                    935                    940  
 Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro Ser Gly  
                     945                    950                    955                    960  
 Leu Ala Phe Ala Ser His Val  
                     965

&lt;210&gt; 12

&lt;211&gt; 2901

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1) ... (2901)



&lt;400&gt; 12

atg ccc agc ccg ccg ggg ctc cgg gcg cta tgg ctt tgc gcc gcg ctg	48
Met Pro Ser Pro Pro Gly Leu Arg Ala Leu Trp Leu Cys Ala Ala Leu	
1 5 10 15	
tgc gct tcc cgg agg gcc ggc ggc gcc ccc cag ccc ggc ccg ggg ccc	96
Cys Ala Ser Arg Arg Ala Gly Gly Ala Pro Gln Pro Gly Pro Gly Pro	
20 25 30	
acc gcc tgc ccg gcc ccc tgc cac tgc cag gag gac ggc atc atg ctg	144
Thr Ala Cys Pro Ala Pro Cys His Cys Gln Glu Asp Gly Ile Met Leu	
35 40 45	
tct gcc gac tgc tct gag ctc ggg ctg tcc gcc gtt ccg ggg gac ctg	192
Ser Ala Asp Cys Ser Glu Leu Gly Leu Ser Ala Val Pro Gly Asp Leu	
50 55 60	
gac ccc ctg acg gct tac ctg gac ctc agc atg aac aac ctc aca gag	240
Asp Pro Leu Thr Ala Tyr Leu Asp Leu Ser Met Asn Asn Leu Thr Glu	
65 70 75 80	
ctt cag cct ggc ctc ttc cac cac ctg cgc ttc ttg gag gag ctg cgt	288
Leu Gln Pro Gly Leu Phe His His Leu Arg Phe Leu Glu Glu Leu Arg	
85 90 95	
ctc tct ggg aac cat ctc tca cac atc cca gga caa gca ttc tct ggt	336
Leu Ser Gly Asn His Leu Ser His Ile Pro Gly Gln Ala Phe Ser Gly	
100 105 110	
ctc tac agc ctg aaa atc ctg atg ctg cag aac aat cag ctg gga gga	384
Leu Tyr Ser Leu Lys Ile Leu Met Leu Gln Asn Asn Gln Leu Gly Gly	
115 120 125	
atc ccc gca gag gcg ctg tgg gag ctg ccg agc ctg cag tcg ctg cgc	432
Ile Pro Ala Glu Ala Leu Trp Glu Leu Pro Ser Leu Gln Ser Leu Arg	
130 135 140	
cta gat gcc aac ctc atc tcc ctg gtc ccg gag agg agc ttt gag ggg	480
Leu Asp Ala Asn Leu Ile Ser Leu Val Pro Glu Arg Ser Phe Glu Gly	
145 150 155 160	
ctg tcc tcc ctc cgc cac ctc tgg ctg gac gac aat gca ctc acg gag	528
Leu Ser Ser Leu Arg His Leu Trp Leu Asp Asp Asn Ala Leu Thr Glu	
165 170 175	
atc cct gtc agg gcc ctc aac aac ctc cct gcc ctg cag gcc atg acc	576
Ile Pro Val Arg Ala Leu Asn Asn Leu Pro Ala Leu Gln Ala Met Thr	
180 185 190	
ctg gcc ctc aac cgc atc agc cac atc ccc gac tac gcg ttc cag aat	624
Leu Ala Leu Asn Arg Ile Ser His Ile Pro Asp Tyr Ala Phe Gln Asn	
195 200 205	
ctc acc agc ctt gtg gtg ctg cat ttg cat aac aac cgc atc cag cat	672
Leu Thr Ser Leu Val Val Leu His Leu His Asn Asn Arg Ile Gln His	
210 215 220	

ctg ggg acc cac agc ttc gag ggg ctg cac aat ctg gag aca cta gac	720
Leu Gly Thr His Ser Phe Glu Gly Leu His Asn Leu Glu Thr Leu Asp	
225 230 235 240	
ctg aat tat aac aag ctg cag gag ttc cct gtg gcc atc cgg acc ctg	768
Leu Asn Tyr Asn Lys Leu Gln Glu Phe Pro Val Ala Ile Arg Thr Leu	
245 250 255	
ggc aga ctg cag gaa ctg ggg ttc cat aac aac aac atc aag gcc atc	816
Gly Arg Leu Gln Glu Leu Gly Phe His Asn Asn Asn Ile Lys Ala Ile	
260 265 270	
cca gaa aag gcc ttc atg ggg aac cct ctg cta cag acg ata cac ttt	864
Pro Glu Lys Ala Phe Met Gly Asn Pro Leu Leu Gln Thr Ile His Phe	
275 280 285	
tat gat aac cca atc cag ttt gtg gga aga tcg gca ttc cag tac ctg	912
Tyr Asp Asn Pro Ile Gln Phe Val Gly Arg Ser Ala Phe Gln Tyr Leu	
290 295 300	
cct aaa ctc cac aca cta tct ctg aat ggt gcc atg gac atc cag gag	960
Pro Lys Leu His Thr Leu Ser Leu Asn Gly Ala Met Asp Ile Gln Glu	
305 310 315 320	
ttt cca gat ctc aaa ggc acc acc agc ctg gag atc ctg acc ctg acc	1008
Phe Pro Asp Leu Lys Gly Thr Thr Ser Leu Glu Ile Leu Thr Leu Thr	
325 330 335	
cgc gca ggc atc cgg ctg ctc cca tcg ggg atg tgc caa cag ctg ccc	1056
Arg Ala Gly Ile Arg Leu Leu Pro Ser Gly Met Cys Gln Gln Leu Pro	
340 345 350	
agg ctc cga gtc ctg gaa ctg tct cac aat caa att gag gag ctg ccc	1104
Arg Leu Arg Val Leu Glu Leu Ser His Asn Gln Ile Glu Glu Leu Pro	
355 360 365	
agc ctg cac agg tgt cag aaa ttg gag gaa atc ggc ctc caa cac aac	1152
Ser Leu His Arg Cys Gln Lys Leu Glu Glu Ile Gly Leu Gln His Asn	
370 375 380	
cgc atc tgg gaa att gga gct gac acc ttc agc cag ctg agc tcc ctg	1200
Arg Ile Trp Glu Ile Gly Ala Asp Thr Phe Ser Gln Leu Ser Ser Leu	
385 390 395 400	
caa gcc ctg gat ctt agc tgg aac gcc atc cgg tcc atc cac cct gag	1248
Gln Ala Leu Asp Leu Ser Trp Asn Ala Ile Arg Ser Ile His Pro Glu	
405 410 415	
gcc ttc tcc acc ctg cac tcc ctg gtc aag ctg gac ctg aca gac aac	1296
Ala Phe Ser Thr Leu His Ser Leu Val Lys Leu Asp Leu Thr Asp Asn	
420 425 430	
cag ctg acc aca ctg ccc ctg gct gga ctt ggg ggc ttg atg cat ctg	1344
Gln Leu Thr Thr Leu Pro Leu Ala Gly Leu Gly Gly Leu Met His Leu	
435 440 445	

aag ctc aaa ggg aac ctt gct ctc tcc cag gcc ttc tcc aag gac agt	1392
Lys Leu Lys Gly Asn Leu Ala Leu Ser Gln Ala Phe Ser Lys Asp Ser	
450 455 460	
ttc cca aaa ctg agg atc ctg gag gtg cct tat gcc tac cag tgc tgt	1440
Phe Pro Lys Leu Arg Ile Leu Glu Val Pro Tyr Ala Tyr Gln Cys Cys	
465 470 475 480	
ccc tat ggg atg tgt gcc agc ttc ttc aag gcc tct ggg cag tgg gag	1488
Pro Tyr Gly Met Cys Ala Ser Phe Phe Lys Ala Ser Gly Gln Trp Glu	
485 490 495	
gct gaa gac ctt cac ctt gat gat gag gag tct tca aaa agg ccc ctg	1536
Ala Glu Asp Leu His Leu Asp Asp Glu Glu Ser Ser Lys Arg Pro Leu	
500 505 510	
ggc ctc ctt gcc aga caa gca gag aac cac tat gac cag gac ctg gat	1584
Gly Leu Leu Ala Arg Gln Ala Glu Asn His Tyr Asp Gln Asp Leu Asp	
515 520 525	
gag ctc cag ctg gag atg gag gac tca aag cca cac ccc agt gtc cag	1632
Glu Leu Gln Leu Glu Met Glu Asp Ser Lys Pro His Pro Ser Val Gln	
530 535 540	
tgt agc cct act cca ggc ccc ttc aag ccc tgt gag tac ctc ttt gaa	1680
Cys Ser Pro Thr Pro Gly Pro Phe Lys Pro Cys Glu Tyr Leu Phe Glu	
545 550 555 560	
agc tgg ggc atc cgc ctg gcc gtg tgg gcc atc gtg ttg ctc tcc gtg	1728
Ser Trp Gly Ile Arg Leu Ala Val Trp Ala Ile Val Leu Leu Ser Val	
565 570 575	
ctc tgc aat gga ctg gtg ctg ctg acc gtg ttc gct ggc ggg cct gcc	1776
Leu Cys Asn Gly Leu Val Leu Leu Thr Val Phe Ala Gly Gly Pro Ala	
580 585 590	
ccc ctg ccc ccg gtc aag ttt gtg gta ggt gcg att gca ggc gcc aac	1824
Pro Leu Pro Pro Val Lys Phe Val Val Gly Ala Ile Ala Gly Ala Asn	
595 600 605	
acc ttg act ggc att tcc tgt ggc ctt cta gcc tca gtc gat gcc ctg	1872
Thr Leu Thr Gly Ile Ser Cys Gly Leu Leu Ala Ser Val Asp Ala Leu	
610 615 620	
acc ttt ggt cag ttc tct gag tac gga gcc cgc tgg gag acg ggg cta	1920
Thr Phe Gly Gln Phe Ser Glu Tyr Gly Ala Arg Trp Glu Thr Gly Leu	
625 630 635 640	
ggc tgc cgg gcc act ggc ttc ctg gca gta ctt ggg tcg gag gca tcg	1968
Gly Cys Arg Ala Thr Gly Phe Leu Ala Val Leu Gly Ser Glu Ala Ser	
645 650 655	
gtg ctg ctg ctc act ctg gcc gca gtg cag tgc agc gtc tcc gtc tcc	2016
Val Leu Leu Leu Thr Leu Ala Ala Val Gln Cys Ser Val Ser Val Ser	
660 665 670	
tgt gtc cgg gcc tat ggg aag tcc ccc tcc ctg ggc agc gtt cga gca	2064

Cys Val Arg Ala Tyr Gly Lys Ser Pro Ser Leu Gly Ser Val Arg Ala	
675 680 685	
ggg gtc cta ggc tgc ctg gca ctg gca ggg ctg gcc gcc gca ctg ccc	2112
Gly Val Leu Gly Cys Leu Ala Leu Ala Gly Leu Ala Ala Ala Leu Pro	
690 695 700	
ctg gcc tca gtg gga gaa tac ggg gcc tcc cca ctc tgc ctg ccc tac	2160
Leu Ala Ser Val Gly Glu Tyr Gly Ala Ser Pro Leu Cys Leu Pro Tyr	
705 710 715 720	
gcg cca cct gag ggt cag cca gca gcc ctg ggc ttc acc gtg gcc ctg	2208
Ala Pro Pro Glu Gly Gln Pro Ala Ala Leu Gly Phe Thr Val Ala Leu	
725 730 735	
gtg atg atg aac tcc ttc tgt ttc ctg gtc gtg gcc ggt gcc tac atc	2256
Val Met Met Asn Ser Phe Cys Phe Leu Val Val Ala Gly Ala Tyr Ile	
740 745 750	
aaa ctg tac tgt gac ctg ccg cgg ggc gac ttt gag gcc gtg tgg gac	2304
Lys Leu Tyr Cys Asp Leu Pro Arg Gly Asp Phe Glu Ala Val Trp Asp	
755 760 765	
tgc gcc atg gtg agg cac gtg gcc tgg ctc atc ttc gca gac ggg ctc	2352
Cys Ala Met Val Arg His Val Ala Trp Leu Ile Phe Ala Asp Gly Leu	
770 775 780	
ctc tac tgt ccc gtg gcc ttc ctc agc ttc gcc tcc atg ctg ggc ctc	2400
Leu Tyr Cys Pro Val Ala Phe Leu Ser Phe Ala Ser Met Leu Gly Leu	
785 790 795 800	
ttc cct gtc acg ccc gag gcc gtc aag tct gtc ctg ctg gtg gtg ctg	2448
Phe Pro Val Thr Pro Glu Ala Val Lys Ser Val Leu Leu Val Val Leu	
805 810 815	
ccc ctg cct gcc tgc ctc aac cca ctg ctg tac ctg ctc ttc aac ccc	2496
Pro Leu Pro Ala Cys Leu Asn Pro Leu Leu Tyr Leu Leu Phe Asn Pro	
820 825 830	
cac ttc cgg gat gac ctt cgg cgg ctt cgg ccc cgc gca ggg gac tca	2544
His Phe Arg Asp Asp Leu Arg Arg Leu Arg Pro Arg Ala Gly Asp Ser	
835 840 845	
ggg ccc cta gcc tat gct gcg gcc ggg gag ctg gag aag agc tcc tgt	2592
Gly Pro Leu Ala Tyr Ala Ala Ala Gly Glu Leu Glu Lys Ser Ser Cys	
850 855 860	
gat tct acc cag gcc ctg gta gcc ttc tct gat gtg gat ctc att ctg	2640
Asp Ser Thr Gln Ala Leu Val Ala Phe Ser Asp Val Asp Leu Ile Leu	
865 870 875 880	
gaa gct tct gaa gct ggg cgg ccc cct ggg ctg gag acc tat ggc ttc	2688
Glu Ala Ser Glu Ala Gly Arg Pro Pro Gly Leu Glu Thr Tyr Gly Phe	
885 890 895	
ccc tca gtg acc ctc atc tcc tgt cag cag cca ggg gcc ccc agg ctg	2736
Pro Ser Val Thr Leu Ile Ser Cys Gln Gln Pro Gly Ala Pro Arg Leu	

900	905	910	
gag ggc agc cat tgt gta gag cca gag ggg aac cac ttt ggg aac ccc			2784
Glu Gly Ser His Cys Val Glu Pro Glu Gly Asn His Phe Gly Asn Pro			
915	920	925	
caa ccc tcc atg gat gga gaa ctg ctg ctg agg gca gag gga tct acg			2832
Gln Pro Ser Met Asp Gly Glu Leu Leu Leu Arg Ala Glu Gly Ser Thr			
930	935	940	
cca gca ggt gga ggc ttg tca ggg ggt ggc ggc ttt cag ccc tct ggc			2880
Pro Ala Gly Gly Gly Leu Ser Gly Gly Gly Gly Phe Gln Pro Ser Gly			
945	950	955	960
ttg gcc ttt gct tca cac gtg			
Leu Ala Phe Ala Ser His Val			2901
965			